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CANDIDATE NAME: StemUp Model Solution

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PSYCHOLOGY **9990/11**

Paper 1 Approaches, Issues and Debates **May/June 2025**

1 hour 30 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
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INFORMATION

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

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Section A

Answer **all** questions.

1 From the study by Fagen et al. (elephant learning):

(a) State the number of elephants that successfully passed the trunk-wash test.

4 ..... [1]

(b) **(i)** Identify the primary reinforcer used in this study.

Banana (pieces of banana). ..... [1]

(ii) Identify the secondary reinforcer used in this study.

The sound of a whistle. ..... [1]

(c) Outline the trained behaviour of 'steady' as used in this study.

The elephant holds its trunk still in the position that was previously requested (e.g. trunk here), while it is still allowed to move its head, ears and feet.

.....

..... [2]

2 In the study by Perry et al. (personal space), in Experiment 1 each participant took a computerised test of comfortable interpersonal distance.

(a) Outline the **two** possible ways that this computerised test could end for a participant.

1 The two figures collided (the approaching figure reached the participant's figure). .....

2 The participant pressed the spacebar before the figures collided. .....

[2]

(b) Explain **one** weakness of this study in relation to ethics.

It may have broken the guideline of minimising harm (distress). Participants who need a large personal space may have become stressed as the figure moved closer and closer to them, and they were led to believe they would later have to discuss personal topics with another person. ..... [2]

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3 From the study by Saavedra and Silverman (button phobia):

(a) One aim was to investigate the role of disgust in a childhood phobia.

Outline **one** other aim of this study.

To investigate whether behavioural and imagery exposure therapy, together with positive reinforcement from his mother, could successfully treat a boy's phobia of buttons.

[2]

(b) The sample in the study was a boy with a phobia of buttons.

Identify **two** other features of the sample.

1 *He was 9 years old.*

2 *He was Hispanic-American.*

[2]

(c) Suggest **one** application to everyday life using evidence from this study. Your suggestion **must** be ethical.

The boy's phobia improved when imagery exposure focused on his disgust about buttons. So therapists treating children with phobias could ask them to imagine the feared object, step by step up a hierarchy, rating distress on a Feelings Thermometer, with a parent giving praise. [2]

4 From the study by Dement and Kleitman (sleep and dreams):

Outline **one** result about dream recall and stages of sleep. You **must** use data in your answer.

Dreams were recalled far more often after REM awakenings than NREM awakenings. Dreams were recalled on 152 of the 191 REM awakenings (79.6%), compared with only 11 of the 160 NREM awakenings (about 7%). So dream recall is mainly linked to REM sleep.

[3]

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5 **(a)** Outline **one** assumption of the biological approach.

Behaviour, thoughts and emotions can be explained in terms of the workings of the brain and nervous system, and the effects of hormones and genes.

..... [2]

(b) Explain **one** reason why the study by Hölzel et al. (mindfulness and brain scans) supports the assumption you outlined in part **(a)**.

After the 8-week MBSR course, the mindfulness group showed increased grey matter concentration in the left hippocampus compared with the controls, and their FFMQ mindfulness scores rose. So a change in thinking and emotion went with a change in brain structure, showing behaviour can be explained by the brain. [2]

6 **(a)** Describe the psychology being investigated in the study by Pozzulo et al. (line-ups).

Eyewitness testimony is a person's recall of a crime they saw, e.g. what the culprit looked like, and it may be used in court. Witnesses may be asked to pick the culprit from a line-up of faces. If the culprit is absent, a witness may make a false positive identification: choosing an innocent person while believing it is the culprit, because of social demands (pressure to choose someone). Pozzulo compared how well children and adults rejected target-absent line-ups. [3]

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(b) Two friends, Eric and Quinn, are discussing the validity of the study by Pozzulo et al. (line-ups).

Eric says the study has validity, but Quinn says it does **not** have validity.

Outline why you think **either** Eric **or** Quinn is correct, using evidence from this study.

The friend who I think is correct is: *Quinn*

because: *the study lacks ecological validity (mundane realism). Participants watched short video clips and then had to choose or reject cartoon and human faces from photo line-ups, which is not an everyday activity, even for children, and is very different from seeing a real crime, which is stressful. So the results have limited relevance to real eyewitness line-ups. Also, participant variables were not controlled, such as how familiar each child was with the cartoon characters or their personality, so a child may have picked a face in a target-absent line-up because they are a more obedient child, not because of the social pressure of the line-up.*

[4]

7 In the study by Hassett et al. (monkey toy preferences), each trial used a 'plush' toy and a 'wheeled' toy.

Describe the procedure for **one** trial.

Before the trial the monkeys were kept in the indoor part of their enclosure. One plush toy (e.g. a Winnie-the-Pooh or Raggedy Ann doll) and one wheeled toy (e.g. a wagon or dump truck) were already placed in the outdoor area, 10 metres apart. Whether each toy was on the left or the right was counterbalanced across trials. The monkeys were then released into the outdoor area with the toys. Each trial lasted 25 minutes, and every interaction with the toys was videotaped using a separate camera for each toy.

[5]

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8 Your friend, Imelda, tells you about a problem with her child's behaviour. Her child keeps taking all of his toys from where they are stored in a box and throwing them aggressively around the room. When she asks him to tidy the toys his only response is to shout. Imelda wants your advice on how to improve her child's behaviour.

Outline the advice you would give to Imelda, using your knowledge of the study by Bandura et al. (aggression). Your advice **must** be ethical.

Imelda should make sure her child does not see aggressive models at home, for example adults shouting or throwing things, and she should not shout back at him herself. She should stop him watching aggressive cartoons and choose programmes where characters play and share calmly. A calm model, ideally a male such as his father or uncle since boys imitate same-sex models more, could gently take the toys out of the box, play with them quietly and then tidy them away while the child watches. Imelda could praise the model for tidying up in front of the child. She should also avoid frustrating him just before he opens the toy box. [4]

Section B

Answer **all** questions.

9 **(a)** In the study by Andrade (doodling), the sample size was 40 participants.

Describe the sample of participants used in this study, other than the sample size of 40.

Participants were recruited by opportunity sampling; they were members of the participant panel of the Applied Psychology Unit in Cambridge who had just finished taking part in a different study. They came from the general population and were aged 18 to 55. They were paid for taking part. Most were female: 35 females and 5 males (the doodling group had 17 females and 3 males; the control group had 18 females and 2 males).

[4]

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(b) Explain **two** differences between the study by Andrade (doodling) and **one** other study from the cognitive approach. Do **not** refer to the sample of participants.

1 *The studies used different experimental designs. Andrade used an independent measures design: each participant was in only one group, either the doodling group (shading shapes while listening to the phone message) or the control group (no doodling). Part of Pozzulo's study was repeated measures, because every participant saw both target-present and target-absent line-ups. So in Andrade participants did only one level of the IV, whereas in Pozzulo they did several, meaning Andrade avoided order effects but Pozzulo controlled participant variables better.*

2 *The IVs differed. Andrade's IV (doodling or not) was manipulated by the researcher, who allocated participants to the two conditions, so it was a true laboratory experiment. In Pozzulo, one IV was the age of the participant (children aged 4 to 6 compared with adults), which is a naturally occurring variable that cannot be manipulated, so that part was a quasi-experiment. Therefore Andrade can more confidently conclude that doodling caused better recall, whereas any difference between children and adults in Pozzulo could be due to other age-related factors.*

[8]

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10 Evaluate the study by Milgram (obedience) in terms of **two** strengths and **two** weaknesses. At least one of your evaluation points **must** be about the sampling technique used to recruit participants.

One strength is that Milgram used a highly standardised procedure, which makes the study replicable and its reliability can be tested. Every participant met the same experimenter in a grey technician's coat and the same learner, Mr Wallace, the draw for roles was always rigged, the shock generator went up in the same 15 V steps to 450 V, and the experimenter used the same four prods in order, from "Please continue" to "You have no other choice, you must go on". The learner always pounded on the wall at 300 V and then fell silent. So differences in obedience cannot be due to changes in the procedure, and other researchers can repeat it exactly.

A second strength is the quantitative data. The maximum voltage each participant gave was recorded, so results are objective and easy to compare: all 40 participants went to at least 300 V and 26 of the 40 (65%) went to the full 450 V. Milgram also recorded qualitative observations, such as sweating, trembling and nervous laughter (14 participants), and three participants had full seizures, which explain how stressful obeying was.

However, a weakness is the sampling technique. Milgram used volunteer sampling: a newspaper advertisement and direct mail asked for men to take part in a study of memory and learning at Yale for $4.50. People who volunteer may be more cooperative, curious or keen to help than others, so they may be more obedient than usual. The 40 participants were all men aged 20 to 50 from the New Haven area, so the findings may not generalise to women, to people from other cultures or to people who would not respond to an advert.

Another weakness is ethics. Participants were deceived about the aim, the rigged draw and the fake shocks, so they could not give fully informed consent. The prods made the right to withdraw hard to use, and many were very distressed, so they were not protected from harm. However, they were debriefed and met the unharmed learner afterwards.

Overall, the standardised procedure and quantitative data make the study reliable, but the volunteer sample of American men limits how far the high level of obedience can be

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generalised.

[10]

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Cambridge Assessment International Education

Cambridge International AS & A Level

CANDIDATE NAME: StemUp Model Solution

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PSYCHOLOGY **9990/12**

Paper 1 Approaches, Issues and Debates **May/June 2025**

1 hour 30 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

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Section A

Answer **all** questions.

1 In the study by Perry et al. (personal space), Experiment 2 used four coloured pictures of a room. In these pictures there were several objects including a lamp and a clock.

(a) Name **one** other object that was always in the pictures.

A chair. [1]

(b) Outline how the participants were deceived in Experiment 2 of this study.

They were told that at the end of the experiment they would discuss personal topics with another participant, in an "average" room calculated by the computer from their choices. This was not true: the task was really measuring their preferred interpersonal distance. [2]

(c) Outline **one** result from Experiment 2 of this study in relation to the hormone oxytocin.

High empathy participants given oxytocin chose closer distances between themselves and the other person than high empathy participants given the placebo, whereas low empathy participants showed the opposite trend. [2]

2 From the study by Pozzulo et al. (line-ups):

(a) Identify **two** features of the female used as a 'human face target'.

1 *She was Caucasian.*

2 *She was a 22-year-old student.* [2]

(b) Explain **one** strength of this study in relation to reliability.

The procedure was standardised, so it could be replicated to check the results are consistent. For example, every participant saw all four videos in a random order and was shown line-ups in the same way with the same instructions. [2]

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3 From the study by Milgram (obedience):

(a) Identify **two** features of the sample used in this study.

1 They were all male.

2 They were aged 20 to 50.

[2]

(b) Outline **one** conclusion from this study.

Individuals are much more obedient to an authority figure than we would expect, and will follow orders from that authority even if it means harming another person.

[2]

(c) Suggest **one** application to everyday life using evidence from this study. Your suggestion **must** be ethical.

Schools could get students to follow safety rules in a science lab (what), by having the teacher wear a lab coat, like Milgram's experimenter in his grey technician's coat, and give instructions in a firm, calm voice (how).

[2]

4 From the study by Hassett et al. (monkey toy preferences):

Describe **one** result for toy preferences of the male monkeys. You **must** use data in your answer.

Male monkeys showed a clear preference for wheeled toys over plush toys; 73% of the male monkeys preferred the wheeled toys, and males interacted with the wheeled toys more often and for longer than with the plush toys.

[3]

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5 **(a)** Outline **one** assumption of the learning approach.

We are all born as a blank slate, and our behaviour is learned from our experiences through classical conditioning, operant conditioning and social learning.

[2]

(b) Explain **one** reason why the study by Saavedra and Silverman (button phobia) supports the assumption you outlined in part **(a)**.

The boy was not born with the phobia; it began at age 5 after a bowl of buttons fell on him during an art class at school. So his fear and disgust of buttons were learned from this experience (by association), supporting the blank slate assumption.

[2]

6 **(a)** Outline what is meant by the term 'positive reinforcement'. Include an example from the study by Fagen et al. (elephant learning) in your answer.

Positive reinforcement is when a desired behaviour is followed by a pleasant consequence (a reward), which increases the probability that the behaviour will be repeated. In Fagen's study, each time an elephant correctly performed a target behaviour such as "trunk here", the trainer blew a whistle and gave her a piece of banana, so she was more likely to repeat it.

[3]

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(b) Two friends, Roksana and Tien, are discussing the study by Fagen et al. (elephant learning) in terms of the individual and situational explanations for behaviour.

Roksana says the study supports the individual explanation, but Tien says it supports the situational explanation.

Outline why you think **either** Roksana **or** Tien is correct, using evidence from the study.

The friend who I think is correct is: *Tien*

because: *the situational explanation says behaviour is caused by factors in the external environment rather than within the individual. The elephants learned the trunk wash because of their training, which was operant conditioning. Their behaviour was shaped by the trainers, who rewarded a series of separate behaviours such as "trunk here" and "steady", building up the full trunk wash step by step. Each time they performed a behaviour correctly they heard the whistle and got banana, which encouraged them to repeat it. Distractions in the environment, such as tourists, slowed the training down.* [4]

7 From the study by Bandura et al. (aggression):

Describe the procedure for the 'Aggression Arousal' part of this study.

The child was taken to an anteroom containing very attractive toys, for example a fire engine, a locomotive, a jet fighter plane, a cable car, a spinning top and a doll set with a wardrobe, doll carriage and baby crib. The child was told they could play with these toys. As soon as the child became involved in playing (usually after about 2 minutes), the experimenter stopped them. She said that these were her very best toys, that she did not let just anyone play with them, and that she had decided to reserve them for some other children.

[5]

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8 Your friend, Rosalia, tells you that she has recently begun to feel stressed, even though nothing in her life has changed. Rosalia wants your advice on how to help reduce her level of stress.

Outline the advice you would give to Rosalia, using your knowledge of the study by Hölzel et al. (mindfulness and brain scans).

Rosalia should join an 8-week Mindfulness-Based Stress Reduction (MBSR) course with weekly group meetings. She should practise at home for 45 minutes every day using audio recordings. She can do a body scan, slowly moving her attention through her body to become fully aware of the sensations in each part. She can do mindful yoga, with slow stretching movements done together with deep breathing. She can do sitting meditation, noticing her breath, sounds, thoughts and emotions without judging them. She can also practise mindfulness while eating or walking.

..... [4]

Section B

Answer **all** questions.

9 From the study by Piliavin et al. (subway Samaritans):

(a) Describe the **two** victims used in this study.

One victim was "drunk": he smelled of alcohol and carried a bottle of liquor wrapped tightly in a brown paper bag. The other victim was "ill" (sober): he carried a black cane and acted sober. In both conditions the victim was a man aged 26 to 35, dressed in an Eisenhower jacket, old slacks and no tie; three victims were white and one was black.

..... [4]

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(b) Explain **two** differences between the study by Piliavin et al. (subway Samaritans) and the study by Perry et al. (personal space). One of your differences **must** be about the sample of participants.

1 *The samples differed. Piliavin studied about 4450 men and women, both black and white, who were ordinary passengers on the New York subway on weekdays between 11 am and 3 pm. Perry studied male university students. So Piliavin's sample was large, of both sexes and more varied in age and ethnicity, making it more representative of people in general, whereas Perry's sample was smaller and all male, so the oxytocin findings cannot be generalised to women.*

2 *The setting and control differed. Piliavin was a field experiment on a real subway train, where passengers did not know they were being studied, so their helping was natural and the study had high ecological validity. Perry was a laboratory experiment using a computerised task with animated figures and pictures of rooms, where participants knew they were in a study. So Perry had much more control of extraneous variables, but Piliavin's findings are more like real life.*

[8]

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10 Evaluate the study by Baron-Cohen et al. (eyes test) in terms of **two** strengths and **two** weaknesses. At least one of your evaluation points **must** be about quantitative data.

A strength is that the study collected quantitative data, which made it easy to make meaningful, objective comparisons between groups. Each participant's score was the number of the 36 eye photographs for which they chose the correct mental state word out of four options. Because every group was scored in the same way, the researchers could compare the AS/HFA group with the three other groups: the AS/HFA adults had a mean of about 21.9 out of 36, significantly lower than the general population (about 26.2) and the students (about 28.0). They could also show that females in the general population scored higher than males, and that Eyes Test scores were negatively correlated with AQ scores. These clear numerical comparisons support the conclusion that people with AS/HFA have difficulty with theory of mind.

A second strength is reliability through standardisation. Every participant saw the same 36 black-and-white photographs in the same format, with the same four words for each and a glossary to check the meaning of words, so the test can be repeated with other groups and is a reliable measure.

However, a weakness is that quantitative data lacks detail. A score only shows how many answers were correct; it does not explain why a participant chose the wrong word or how they tried to work out the emotion, so the reasons for the difficulty are not known.

Another weakness is low ecological validity. Looking at still photographs of only the eye region and choosing a word is not like everyday mind reading, where we see the whole face moving, hear the tone of voice and know the context. So a low score may not mean the person cannot recognise emotions in real life. In addition, the AS/HFA group was only 15 males, so the results are hard to generalise to females with AS/HFA.

Overall, the quantitative, standardised test allows reliable comparisons between groups, but it may not fully reflect how people read minds in real life.

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Cambridge Assessment International Education

Cambridge International AS & A Level

CANDIDATE NAME: StemUp Model Solution

CENTRE NUMBER | | | | | |

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PSYCHOLOGY **9990/13**

Paper 1 Approaches, Issues and Debates **May/June 2025**

1 hour 30 minutes

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Section A

Answer **all** questions.

1 From the study by Fagen et al. (elephant learning):

(a) State the number of elephants used in this study.

5 ..... [1]

(b) Identify **two** criteria used to select the elephants in this study.

1 Their level of docility. .....

2 They were not pregnant and did not have a calf. .....

[2]

(c) Elephants were trained to do a number of behavioural tasks including 'trunk here'.

Outline the 'trunk here' task.

The elephant gently places the distal end (tip) of her trunk on the palm of the trainer's hand, with the underside (ventral part) of the trunk also touching the palm. .....

.....

..... [2]

2 In the study by Dement and Kleitman (sleep and dreams), an EEG (electroencephalogram) was used.

(a) Outline where on each participant's body the EEG electrodes were attached.

Electrodes were attached to the scalp (head), and also next to the eyes to record eye movements. All the lead wires were gathered together at the top of the head. .....

.....

..... [2]

(b) Explain **one** weakness of this study in relation to validity.

Low ecological validity: participants slept in an artificial sleep laboratory, not at home, wired up to electrodes and woken by a doorbell, which may have changed their normal sleep and dream patterns. .....

..... [2]

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3 From the study by Bandura et al. (aggression):

(a) One aim was to investigate whether children would reproduce the aggression shown by a model when that model is no longer there.

Outline **one** other aim of this study.

To investigate whether children are more likely to imitate the aggressive behaviour of a same-sex model than an opposite-sex model.

[2]

(b) Identify **two** features of the sample in this study.

1 *There were 72 children.*

2 *They were aged 37 to 69 months (mean 52 months).*

[2]

(c) Suggest **one** application to everyday life using evidence from this study. Your suggestion **must** be ethical.

Parents can reduce aggression in their children (what) by limiting the aggressive TV and video games they watch and choosing programmes where characters behave kindly and prosocially, so the children imitate these models instead (how).

[2]

4 In Experiment 1 in the study by Perry et al. (personal space), participants were given oxytocin (OT) or a placebo (PL).

Describe **one** result from the high empathy OT condition that compares two approaching figures. You **must** use data in your answer.

In the high empathy oxytocin condition, participants wanted the most space from a stranger; the mean comfortable distance when a stranger approached was 40, which was greater than when a friend approached, which was the smallest distance.

[3]

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5 **(a)** Outline **one** assumption of the social approach.

Behaviour, thoughts and emotions are influenced by the actual, imagined or implied presence of other people, and by social contexts and social groups.

..... [2]

(b) Explain **one** reason why the study by Piliavin et al. (subway Samaritans) supports the assumption you outlined in part **(a)**.

Helping depended on the social context: the ill victim with a cane was helped on 95% of trials but the drunk victim on only 50%, because passengers saw his need as self-inflicted. So the type of person needing help (the social context) influenced their behaviour. [2]

6 **(a)** Describe the psychology being investigated in the study by Hassett et al. (monkey toy preferences).

Sex differences are differences in behaviour between males and females that may be caused by biological factors such as hormones, e.g. prenatal exposure to testosterone. In humans, toy preferences could also come from socialisation, where society teaches what toys suit boys or girls. Play is activity done for enjoyment. Hassett tested whether male and female rhesus monkeys, who are not socialised about toys, preferred wheeled (masculine) or plush (feminine) toys. [3]

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(b) Two friends, Madison and Zach, are discussing the validity of the study by Hassett et al. (monkey toy preferences).

Madison says the study has validity, but Zach says it does **not** have validity.

Outline why you think **either** Madison **or** Zach is correct, using evidence from the study.

The friend who I think is correct is: Madison

because: the study has ecological validity; the monkeys were tested in their own familiar outdoor enclosure, living in their normal large social group, so their play with the toys was natural. There were also good controls. The toys were placed 10 metres apart and their left and right positions were counterbalanced, and all play was videotaped so no observers were close by. This means location and people were less likely to affect toy choice, so differences in play were more likely due to the type of toy (wheeled or plush), giving internal validity.

..... [4]

7 In the study by Milgram (obedience), a shock generator was used. It consisted of 30 lever switches in a horizontal line.

Describe the shock generator used in this study, other than these features.

Each switch was clearly labelled with a voltage, ranging from 15 V to 450 V, going up in 15-volt steps. Groups of four switches had verbal labels, from "Slight Shock" through to "Danger: Severe Shock", and the last two switches were simply labelled "XXX". When a switch was pressed, a red pilot light came on, an electric buzzing sound was heard and a blue light labelled "voltage energizer" flashed. It was connected by wires to electrodes attached to the learner, which were supposed to deliver the shocks.

..... [5]

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8 Your friend, Alfonso, is finding it difficult to concentrate at school. He tells you that his concentration is worse when he is bored. He has come to you for advice about ways to help him improve his concentration.

Outline the advice you would give to Alfonso, using your knowledge of the study by Andrade (doodling).

Alfonso should keep a sheet of paper on his desk in boring lessons. When he feels bored he can draw simple shapes such as squares and circles on it and shade them in, or use a sheet that already has shapes printed on it to colour in. He can shade whenever he wants and at his own pace, and it does not matter how neat or quick he is. He should do this especially when the teacher is giving information he needs to remember, while still listening.

[4]

Section B

Answer **all** questions.

9 **(a)** Describe the Five Facet Mindfulness Questionnaire (FFMQ) used in the study by Hölzel et al. (mindfulness and brain scans).

The FFMQ is a 39-item self-report questionnaire that measures five facets of mindfulness: observing, describing, acting with awareness, non-judging of inner experience and non-reactivity to inner experience. Each statement is rated on a 5-point scale from 1 (never or very rarely true) to 5 (very often or always true).

[4]

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(b) Explain **one** similarity and **one** difference between the study by Hölzel et al. (mindfulness and brain scans) and **one** other study from the biological approach. Do **not** refer to questionnaires.

Similarity *Both studies used small samples. Hölzel had 16 participants in the MBSR group (and 17 controls), and Dement and Kleitman studied only 9 adults (7 men and 2 women). This means both could study each participant in detail with expensive equipment (MRI scans or overnight EEG recording), but the small samples mean individual differences could affect the results, so both studies are less easy to generalise to the wider population.*

Difference *They used different techniques to measure the brain. Hölzel used MRI scans to measure changes in grey matter concentration (brain structure) before and after the 8-week mindfulness course. Dement and Kleitman used an EEG, which records electrical brain wave activity, to identify REM and NREM sleep during the night. So Hölzel studied the structure of the brain over weeks, whereas Dement and Kleitman studied brain function in real time.*

[8]

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10 Evaluate the study by Saavedra and Silverman (button phobia) in terms of **two** strengths and **two** weaknesses. At least one of your evaluation points **must** be about subjective data.

A strength is that the case study gave in-depth, detailed data about one boy, a 9-year-old with a phobia of buttons, using several methods. The therapists interviewed both the boy and his mother with a structured diagnostic interview (the ADIS), recorded the history of the phobia (a bowl of buttons fell on him at school when he was 5) and tracked his ratings through treatment and follow-up. Using several sources (triangulation) increases the validity of the conclusion that imagery exposure focused on disgust reduced his phobia.

A second strength is that measures were standardised. Distress was rated on the same Feelings Thermometer (0 to 8) for each step of the button hierarchy, and severity was assessed with the same structured interview before treatment, after it and at follow-up (up to 12 months). This means the procedure could be replicated with other children, so its reliability can be tested.

However, a weakness is that the main data were subjective. The Feelings Thermometer ratings were the boy's own judgements of how distressed he felt, and the severity ratings depended on the clinician's interpretation. The boy may have given lower ratings than he really felt because he wanted to please his mother and the therapist, or did not want to look scared (social desirability). So the measured improvement may not be fully valid. On the other hand, the ratings were turned into numbers, so changes could still be compared over time.

Another weakness is generalisability. The sample was a single Hispanic-American boy with an unusual phobia caused by one specific event, so the findings may not apply to adults, to females or to people with other phobias, and a Feelings Thermometer may not be useful when the phobia is not of a concrete object.

Overall, the detailed and standardised case study supports using imagery exposure with disgust, but its subjective data and single participant mean the findings should be tested further.

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