GCE A LEVEL

S25-1290U30-1

1290U30-1

WEDNESDAY, 21 MAY 2025 – MORNING

PSYCHOLOGY – A2 unit 3
Implications in the Real World

2 hours 30 minutes

ADDITIONAL MATERIALS

A WJEC pink 16-page answer booklet.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

Answer **three** questions in Section A.

Answer **one** question in Section B.

Write your answers in the separate answer booklet provided following the instructions on the front of the answer booklet.

Use both sides of the paper. Write only within the white areas of the booklet.

Write the question number in the two boxes in the left-hand margin at the start of each answer for example, **0 1** .

Leave at least two line spaces between each answer.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.

You are reminded that Section B of this paper is synoptic and so will test understanding of the connections between the different elements of the subject.

You are reminded of the necessity for good English and orderly, clear presentation in your answers. Assessment will take into account the quality of written communication used in your answers.

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SECTION A: The study of behaviours

Answer **three** questions in full.

0 1 **Addictive behaviours**

a) Describe **one** biological explanation of addictive behaviours. [10]

b) Rhyd started smoking 20 years ago. More recently he has turned to opioid drugs as cigarettes were no longer having the desired effect. Although he often says he wants to give up, he still continues using both. When asked, he says craving a hit is the worst feeling in the world. His doctor has said that his addictions are having a serious effect on his health and has recommended a few ways that he could try and overcome this.

With reference to this scenario, evaluate the effectiveness of **two** methods of modifying addictive behaviours. [15]

0 2 **Autistic spectrum behaviours**

a) Lee is a youth club leader and has recently been told someone with autistic spectrum disorder will be attending the club. He has been told that they have poorly developed social skills, in particular an inability to see the world from the point of view of others. They also have difficulties in communication, such as understanding irony. Lee wants to learn more about the condition before they attend.

With reference to the scenario, describe **two** explanations of autistic spectrum behaviours. [15]

b) Evaluate Relationship Development Intervention (RDI) as a method of modifying autistic spectrum behaviours. [10]

0 3 **Bullying behaviours**

a) Describe **one** social psychological explanation of bullying behaviours. [10]

b) Individual differences explanations can be applied to methods of modifying bullying behaviours. Briefly explain how. [5]

c) Evaluate individual differences explanations of bullying behaviours. [10]

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0 4 **Criminal behaviours**

a) Describe the characteristics of criminal behaviours. [10]

b) Briefly explain how biological explanations could be applied to modifying criminal behaviour. [5]

c) Evaluate the effectiveness and the ethical and social implications of **one** method of modifying criminal behaviour. [10]

Schizophrenia

0 5 **a)** Briefly describe **two** explanations of schizophrenia. [5 + 5]

b) Biological explanations offer the best way of explaining schizophrenia as they have more strengths than weaknesses, for example, they offer effective methods of modifying schizophrenia. However, some psychologists believe biological explanations may not offer a complete account.

Evaluate biological explanations of schizophrenia, with reference to this statement. [15]

0 6 **Stress**

a) Briefly describe and evaluate **one** social psychological explanation of stress. [10]

b) Briefly describe and evaluate **one** biological explanation of stress. [10]

c) Individual differences explanations can be applied to methods of modifying stress. Briefly explain how. [5]

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SECTION B: Controversies

Answer **one** of the questions.

Either,

0 7 **Scientific status**

Methodologies used by some approaches in psychology are unscientific and this stops psychology from being regarded as a science.

Using your knowledge of psychology, discuss this statement. [25]

Or,

0 8 **Non-human animals**

Using non-human animals in psychology is necessary for the 'greater good' of humanity.

Using examples from psychology, discuss the use of non-human animals in research and as a therapeutic device. [25]

END OF PAPER

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Surname	StemUp Model Solution
Answer booklet	Write the question number in the left-hand margin at the start of each answer.

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0 1 (a) The dopamine explanation is a biological explanation that sees addiction as the result of drugs and behaviours hijacking the brain's reward system. The key structure is the mesolimbic dopamine pathway, which runs from the ventral tegmental area (VTA) in the midbrain to the nucleus accumbens, with links to the prefrontal cortex. Normally this pathway releases dopamine in response to natural rewards such as food and sex, producing pleasure and motivating us to repeat behaviours that aid survival.

Addictive drugs raise dopamine in the nucleus accumbens far more than natural rewards, but by different routes. Nicotine binds to nicotinic acetylcholine receptors on VTA neurons, which then fire and release dopamine. Opioids such as heroin bind to opioid receptors and inhibit the GABA neurons that normally hold back dopamine neurons, so more dopamine is released (disinhibition).

Cocaine blocks the reuptake of dopamine, so it stays in the synapse for longer.

The surge of dopamine produces a 'high', which acts as positive reinforcement, so the drug taking is repeated.

With repeated use the brain adapts to the constant high levels of dopamine by downregulation: the number of dopamine (D2) receptors falls and less dopamine is released naturally. This explains tolerance, because the person needs more of the drug, or a stronger drug, to get the same effect. When the drug is stopped, dopamine activity falls below its normal baseline, producing withdrawal symptoms such as low mood, anxiety and intense craving. The addict now takes the drug to avoid these feelings, so the addiction is maintained by negative reinforcement.

The cortex is important in maintaining addiction. Volkow et al. used PET scans and found that drug abusers had a reduction in the number of D2 receptors

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and a reduction in the release of dopamine compared with controls, and that this persisted months after they stopped using. The reduced D2 activity was linked to lower activity in the orbitofrontal cortex and cingulate gyrus, areas of the prefrontal cortex involved in decision making and impulse control. This means the addict finds natural rewards less pleasurable and is less able to inhibit the urge to use, which helps explain relapse.

Finally, through incentive sensitisation (Robinson and Berridge, 1993), cues that have been paired with the drug, such as a lighter, come to trigger dopamine release on their own. Dopamine therefore creates 'wanting' (craving) even when the drug is no longer 'liked', which is why addicts keep using a drug that no longer gives them much pleasure.

0 1 (b) Two methods of modifying addictive behaviours that could be used to help Rhyd are aversion therapy and drug therapy using agonists and antagonists.

Aversion therapy is based on classical conditioning. The addictive substance is paired with an unpleasant stimulus so that it becomes associated with a negative response rather than pleasure. For smoking this can be done by rapid smoking, where the smoker puffs every six to eight seconds until they feel sick. Research gives some support, as rapid smoking often produces short-term abstinence. However, the Cochrane review by Hajek and Stead concluded that there is insufficient evidence that rapid smoking is effective in the long term, as most studies had small samples and poor controls. A key weakness is that the conditioned response tends to extinguish once treatment ends, because outside the clinic the cigarette or drug is no longer paired with nausea, so relapse rates are high.

Applied to Rhyd, aversion therapy may not be suitable. Rhyd says that craving a hit is the worst feeling in the world, so his addiction is now maintained mainly by negative reinforcement, the avoidance of withdrawal and craving. Aversion therapy targets the pleasure of the drug but does nothing about withdrawal, so

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when Rhyd is craving he is still likely to relapse. Also, his doctor says the addictions are already having a serious effect on his health, and rapid smoking increases heart rate and carbon monoxide intake, which could be dangerous for someone with smoking-related health problems. There are also ethical issues, as the therapy deliberately causes distress, so it has high drop-out rates, especially in someone like Rhyd who is ambivalent about giving up. Covert sensitisation, where Rhyd would only imagine unpleasant consequences, would be a safer and more ethical alternative.

Drug therapy uses chemicals that act on the same receptors as the addictive drug. An agonist mimics the drug: methadone and buprenorphine stimulate opioid receptors, and nicotine replacement therapy (NRT), such as patches and gum, delivers nicotine without the tar. Because they act more slowly and steadily than the drug, they reduce craving and withdrawal without giving the same high. An antagonist, such as naltrexone, blocks opioid receptors so that if Rhyd took heroin he would feel no pleasure, so drug use would no longer be reinforced.

There is strong evidence for agonists. Mattick et al.'s Cochrane review found that methadone maintenance was more effective than treatments that did not use drugs at keeping heroin users in treatment and reducing their heroin use. Cochrane reviews of NRT have found that it increases the chances of successfully stopping smoking by around 50 to 60% compared with placebo. Methadone also reduces crime and the spread of HIV through shared needles. This makes drug therapy very suitable for Rhyd, because it directly targets the craving he describes as the worst feeling in the world, and he could use NRT and methadone together to treat both addictions. However, methadone is itself addictive, so Rhyd may simply swap one dependence for another, and treatment can last for years. Naltrexone is less effective in practice: Cochrane reviews found oral naltrexone no better than placebo, mainly because of poor compliance, as addicts simply stop taking it. As Rhyd often says he wants to give up but carries on, he may not stay motivated to take an antagonist every day.

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Comparing the two, drug therapy has better evidence and fits Rhyd's problem better, because it treats the biological cause of his craving and withdrawal, which is consistent with the dopamine explanation, whereas aversion therapy is less effective and less ethical. However, neither deals with the psychological and social causes of his addiction, such as stress or smoking cues. Both work best when combined with psychological therapy such as motivational interviewing, which would help Rhyd resolve his ambivalence about quitting. In conclusion, a combination of agonist drug therapy and psychological support would be the most effective way for Rhyd to overcome his addictions.

0 2 (a) Two explanations of autistic spectrum behaviours that would help Lee understand the young person are the theory of mind explanation and the empathising-systemising theory.

Theory of mind is an individual differences explanation. Theory of mind (ToM) is the ability to understand that other people have their own beliefs, desires, intentions and knowledge that may be different from our own, and to use this to predict their behaviour. It normally develops by around age four. Baron-Cohen proposed that people with autism have a cognitive deficit in ToM, called 'mind blindness'. Baron-Cohen, Leslie and Frith (1985) tested this with the Sally-Anne test. Children watched two dolls: Sally puts a marble in her basket and leaves, Anne moves it to her box, and the child is asked where Sally will look for her marble. To pass, the child must understand Sally's false belief. 80% of the 20 autistic children failed, saying Sally would look in the box, while 85% of the typically developing children and 86% of the children with Down's syndrome passed, even though the autistic children had a higher mental age than the Down's syndrome group. Later, Baron-Cohen et al. developed the 'Reading the Mind in the Eyes' test, and adults with autism or Asperger syndrome were less able than controls to identify emotions from photographs of eyes.

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This explains the behaviours Lee has been told about. An inability to see the world from the point of view of others is exactly what a ToM deficit predicts, so the young person may not realise that other members of the club do not know what they know, or may not notice when someone is bored or upset, which leads to poorly developed social skills. Understanding irony requires second-order ToM, because you must work out that the speaker means the opposite of what they say. Happé (1993) found that autistic people who failed ToM tasks interpreted ironic statements literally, so if Lee says 'Brilliant, it's raining again', the young person may think he is pleased.

The empathising-systemising (E-S) theory was proposed by Baron-Cohen (2002) and is a social psychological explanation linked to male behaviour. Empathising is the drive to identify another person's thoughts and feelings and respond with an appropriate emotion, whereas systemising is the drive to analyse and build rule-based systems, such as maths, timetables or machines, to predict how they work. The theory states that on average females are stronger at empathising and males are stronger at systemising, and that autism is an extreme form of the male brain, with very high systemising and very low empathising. Baron-Cohen et al. developed the Empathy Quotient (EQ) and Systemising Quotient (SQ) questionnaires and found that adults with Asperger syndrome or high functioning autism scored lower on the EQ and higher on the SQ than controls, and men scored higher than women on the SQ. The theory suggests that high levels of foetal testosterone may cause this extreme male brain: Auyeung et al. (2009) found that higher testosterone in amniotic fluid was associated with more autistic traits in childhood. This also helps explain why males are more likely to be diagnosed with ASD.

For Lee, E-S theory explains why the young person has poor social skills: social interaction is unpredictable and cannot be easily systemised, and low empathising means they struggle to read other people's feelings. Irony and jokes break the normal rules of language, so they are hard for someone who processes language in a literal, rule-based way. However, the theory also highlights

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strengths, so Lee could involve the young person in structured, rule-based activities, such as board games, computing or organising the club's equipment, and could use clear, literal language and avoid sarcasm.

0 2 (b) Relationship Development Intervention (RDI) is a family-based programme developed by Gutstein, which aims to develop 'dynamic intelligence', the flexible thinking and emotional sharing needed for relationships. Parents are trained by a consultant to act as guides, using slow-paced, everyday activities to encourage experience sharing, emotional referencing and coping with change.

Some research supports its effectiveness. Gutstein, Burgess and Montfort (2007) followed 16 children who completed RDI and reported improvements in ADOS scores, with many no longer meeting the diagnostic criteria for autism, more flexible behaviour and an increase in the number attending mainstream school.

However, this evidence is weak. The sample was very small, there was no control group, so improvements may have been due to maturation or other therapies, and the study was carried out by the developer of RDI, so there is a risk of researcher bias. There have been very few independent randomised controlled trials, so RDI does not have the strong evidence base of other methods.

Compared with Applied Behaviour Analysis (ABA), RDI is less well supported. Lovaas (1987) found that 47% of children receiving intensive ABA reached normal intellectual and educational functioning, compared with 2% of a control group. However, ABA teaches specific behaviours through reinforcement, and these may not generalise to new situations, whereas RDI aims to build the underlying motivation and flexible thinking needed for real relationships, so any gains may be more meaningful and longer lasting.

The explanation RDI is based on has some validity. It targets deficits in social referencing and sharing of perspectives, which fits the theory of mind and empathising-systemising explanations, which are well supported by research such

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as the Sally-Anne test. However, it does not address biological causes such as genetics or amygdala dysfunction, so it may only treat the social symptoms. Ethically, RDI is a positive method. It does not use punishment or aversive techniques, is child-centred and works at the child's pace, and parents are fully involved and give informed consent. However, it places a heavy burden on families: parents must give many hours each week for several years, which may be stressful, and some argue that trying to change autistic people to fit neurotypical social norms does not respect neurodiversity. Socially, RDI can improve family relationships and help children integrate into school and the community, which may reduce the long-term costs of care. However, it is expensive, needing a private certified consultant, and is not usually available through the NHS, so it is only accessible to wealthier families, which raises issues of inequality.

In conclusion, RDI is an ethical, family-centred method with a plausible theoretical basis, but its effectiveness has not been demonstrated by rigorous, independent research, so it should be seen as promising rather than proven.

0 6 (a) The daily hassles explanation is a social psychological explanation which argues that stress is caused more by the minor, everyday irritations of life, such as losing keys, traffic jams or arguments, than by major life events. Kanner et al. (1981) developed the Hassles Scale (117 items) and the Uplifts Scale (135 items), uplifts being minor positive experiences that may protect against stress. 100 adults aged 45 to 64 completed the scales monthly for nine months. Hassles were a better predictor of psychological symptoms such as anxiety and depression than life events, while uplifts were only weakly related. Flett et al. (1995) explain why hassles matter: they accumulate, so that many small stressors add up and wear down coping resources (the accumulation effect); a major life event can amplify hassles, for example a divorce creates many new

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daily hassles (amplification); and people receive less social support for hassles than for major events, so they cope alone.

The explanation is supported by further research. Bouteyre et al. (2007) found that daily hassles in first-year university students were positively correlated with depressive symptoms, and DeLongis et al. found that hassles were linked to poorer health. It is useful because hassles are common in everyone's life, unlike major events, and it has led to interventions such as stress management and building social support. However, the research is correlational, so we cannot conclude that hassles cause stress; people who are already stressed or depressed may perceive more events as hassles. The scales are self-report and often retrospective, so they may suffer from recall bias and social desirability. The explanation also ignores individual differences, such as hardiness or locus of control, in how hassles are appraised, so the same hassle may be stressful for one person but not another. Overall it is a valid but incomplete explanation that works best alongside life events and biological explanations.

0 6 (b)

One biological explanation of stress is the role of adrenaline. When a person perceives a stressor, the hypothalamus activates the sympathetic branch of the autonomic nervous system, which stimulates the adrenal medulla to release adrenaline (and noradrenaline) into the bloodstream: the sympatho-adrenal medullary (SAM) pathway. Adrenaline triggers the fight or flight response. It increases heart rate, which may feel like the heart racing; redirects blood towards the muscles, giving a surge of energy or shaking limbs; relaxes the airways to supply the muscles with more oxygen, which can make breathing shallow; increases the speed of brain activity to plan an escape route; and widens the pupils to let in more light. Glucose is also released for energy. The effects of an adrenaline rush can last up to an hour, until the parasympathetic nervous system returns the body to its resting state. Repeated activation can damage health, for example through high blood pressure.

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A strength is that the explanation is supported by objective physiological evidence: measures of heart rate, blood pressure and adrenaline levels show clear increases under stress, which is more scientific and reliable than self-report. It is also useful, because it has led to effective treatments: beta blockers reduce the symptoms of stress by blocking the action of adrenaline on beta receptors in the heart, which supports adrenaline's role. However, it is reductionist, as it ignores cognitive factors. Lazarus argued that stress depends on how we appraise a stressor, which explains why different people react differently to the same event. Much of the early research was carried out on males and animals, and Taylor et al. (2000) suggested females are more likely to show a 'tend and befriend' response, linked to oxytocin, so there may be a gender bias. The SAM pathway also mainly explains acute stress, while chronic stress is better explained by the HPA axis and cortisol, so the explanation is incomplete.

0 6 (c)

Individual differences explanations suggest that methods of modifying stress should be matched to the person. Kobasa's hardiness theory states that people high in commitment, control and challenge cope better, so stress inoculation training (SIT) can be used to build hardiness, for example by teaching people to reframe stressors as challenges in the conceptualisation phase. Self-efficacy is a person's belief in their ability to cope, and the skills acquisition and rehearsal phase of SIT increases self-efficacy by letting people practise coping skills, such as relaxation and positive self-talk, in increasingly stressful situations. Type A personalities, who are competitive, impatient and hostile (Friedman and Rosenman), experience more stress, so SIT could target their time urgency and hostility, while beta blockers might help Type A individuals whose stress produces strong physiological reactions such as a racing heart. A Type B person or a hardy individual may need less intervention.

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0 8

Psychology has used non-human animals both as research subjects, to discover principles of behaviour that might apply to humans, and as therapeutic devices, such as in animal-assisted therapy. Supporters argue this is justified by the 'greater good' of humanity, while critics argue the costs to animals are too high.

In research, animal studies have contributed to many areas of psychology. Pavlov's work on classical conditioning in dogs and Skinner's research on operant conditioning with rats and pigeons produced the principles of behaviourism, which led to therapies such as systematic desensitisation and aversion therapy. Olds and Milner (1954) discovered the brain's 'pleasure centre' when rats pressed a lever repeatedly to receive electrical stimulation, research that underpins the dopamine explanation of addiction. Selye's General Adaptation Syndrome came from research on rats exposed to stressors. Even the chloride ion explanation of autism comes from Tyzio et al. (2014), who used rodent models to show that blocking oxytocin at birth kept chloride levels high. This supports the claim that animal research serves the greater good, as these findings have improved the lives of millions of people.

There are also practical reasons for using animals. They can be studied in highly controlled laboratory conditions, which allows cause and effect to be established. Rats have short life cycles, so development across generations can be studied. Animals share much of our physiology, so processes such as neurotransmission can be generalised. Some procedures, such as lesioning the brain or separating infants from mothers, would be completely unethical with humans. Gray (1991) argued that humans have a special duty of care towards their own species, so animal experimentation is justified if it helps humans. Not all animal research is harmful either: Lorenz (1935) studied imprinting in goslings in a naturalistic way, and this contributed to Bowlby's theory of attachment.

Animal research is also strictly regulated. In the UK, the Animals (Scientific Procedures) Act 1986 requires researchers to hold Home Office licences for themselves, the project and the premises, and a cost-benefit analysis must be

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carried out. The BPS Guidelines for Psychologists Working with Animals require psychologists to follow the 3Rs: Replacement (using alternatives such as computer models where possible), Reduction (using the fewest animals needed) and Refinement (minimising pain and distress). They also cover choice of species, procedures and housing. Bateson's cube (1986) suggests research is only justified when quality and likely benefit are high and suffering is low. This means needless experiments are avoided.

However, there are strong arguments against animal research. Firstly, there is the problem of generalisation. Human behaviour is influenced by language, culture and complex cognition, so findings may only apply to the species tested. For example, although Harlow's research showed that infant rhesus monkeys preferred a cloth-covered 'mother' to a wire one that gave milk, human attachment involves much more, so the value of the findings is limited and the suffering may have been needless. Secondly, there are ethical objections. Harlow's monkeys grew up socially and emotionally damaged, and Seligman's learned helplessness research gave dogs electric shocks. Animals are sentient: they can feel pain and experience emotions, and the Treaty of Lisbon (2009) declared that all animals are sentient. Singer (1975) argued that discriminating on the basis of species is speciesism, a prejudice comparable to racism or sexism. Regan (1984) took an absolutist animal rights position, arguing that animals have inherent rights, so no animal experiment can ever be justified, whatever the benefit to humans. There is a paradox here: if animals are similar enough to humans for findings to generalise, they may be similar enough to suffer as humans do, which makes the research harder to justify ethically.

Non-human animals are also used as a therapeutic device, for example in animal-assisted therapy (AAT) with dogs, horses or dolphins. Research shows that animals can have positive effects on stress and mental health. Friedmann et al. (1980) found that pet owners were significantly more likely to survive a year after a heart attack than non-owners, and Allen et al. (2002) found that people had smaller increases in heart rate and blood pressure during a stressful

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task when their pet was present than when their spouse or a friend was. Barker and Dawson (1998) found that a single session of AAT reduced anxiety in psychiatric inpatients, including those with psychotic disorders such as schizophrenia, while recreational therapy only helped patients with mood disorders. Nimer and Lundahl's (2007) meta-analysis of 49 studies found moderate positive effects of AAT on autism spectrum symptoms, behavioural problems and emotional wellbeing. Animals may help by providing non-judgemental social support and touch. This use clearly benefits humans with little harm to the animal, so it is easier to justify than invasive research. However, AAT is still a relatively new treatment, and the evidence for its effectiveness is mixed. Many studies have small samples and no control group, so improvements may be due to novelty or the therapist's attention rather than the animal. There are also ethical issues for the animals, which can find therapy sessions stressful and tiring, and if the benefit to the patient is minimal, it could be argued that the costs to the animal outweigh the benefits. The BPS guidelines therefore also require psychologists using animals in practice to protect the animal's welfare.

In conclusion, the claim that using non-human animals is necessary for the greater good of humanity is partly justified. Animal research has made major contributions, such as conditioning and the biology of addiction, and AAT benefits many patients. However, the word 'necessary' is too strong. Problems with generalising from animals to humans mean some research, such as Harlow's, caused suffering that was not necessary, and alternatives such as human brain scanning and computer models increasingly allow replacement. The use of animals is most justifiable when it is regulated by the 3Rs, the BPS guidelines and the 1986 Act, the likely benefits are high and the suffering is minimal, as in most animal-assisted therapy, but less justifiable for invasive behavioural research where the benefits to humans are uncertain.