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Surname: StemUp Model Solution | Other names:

Pearson Edexcel
International Advanced Level

Centre Number | Candidate Number

Psychology

International Advanced Level
Paper 3: Applications of Psychology

Wednesday 7 June 2017 – Afternoon
Time: 1 hour 30 minutes

Paper Reference
WPS03/01

You do not need any other materials.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions in Section A, and **all** questions from **EITHER** Option 1 criminological psychology **OR** option 2 health psychology.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*

Information

- The total mark for this paper is 64.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- The list of formulae and statistical tables are printed at the start of this paper.
- Candidates may use a calculator.

Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.

Turn over ▶

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FORMULAE AND STATISTICAL TABLES

Standard deviation (sample estimate)

$$\sqrt{\left(\frac{\sum(x-\bar{x})^2}{n-1}\right)}$$

Spearman's rank correlation coefficient

$$1-\frac{6\sum d^2}{n(n^2-1)}$$

Critical values for Spearman's rank

	Level of significance for a one-tailed test				
	0.05	**0.025**	**0.01**	**0.005**	**0.0025**
	Level of significance for a two-tailed test				
N	**0.10**	**0.05**	**0.025**	**0.01**	**0.005**
5	0.900	1.000	1.000	1.000	1.000
6	0.829	0.886	0.943	1.000	1.000
7	0.714	0.786	0.893	0.929	0.964
8	0.643	0.738	0.833	0.881	0.905
9	0.600	0.700	0.783	0.833	0.867
10	0.564	0.648	0.745	0.794	0.830
11	0.536	0.618	0.709	0.755	0.800
12	0.503	0.587	0.678	0.727	0.769
13	0.484	0.560	0.648	0.703	0.747
14	0.464	0.538	0.626	0.679	0.723
15	0.446	0.521	0.604	0.654	0.700
16	0.429	0.503	0.582	0.635	0.679
17	0.414	0.485	0.566	0.615	0.662
18	0.401	0.472	0.550	0.600	0.643
19	0.391	0.460	0.535	0.584	0.628
20	0.380	0.447	0.520	0.570	0.612
21	0.370	0.435	0.508	0.556	0.599
22	0.361	0.425	0.496	0.544	0.586
23	0.353	0.415	0.486	0.532	0.573
24	0.344	0.406	0.476	0.521	0.562
25	0.337	0.398	0.466	0.511	0.551
26	0.331	0.390	0.457	0.501	0.541
27	0.324	0.382	0.448	0.491	0.531
28	0.317	0.375	0.440	0.483	0.522
29	0.312	0.368	0.433	0.475	0.513
30	0.306	0.362	0.425	0.467	0.504

The calculated value must be equal to or exceed the critical value in this table for significance to be shown.

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Chi-squared distribution formula

$$X^2 = \sum \frac{(O-E)^2}{E} \qquad df = (r-1)(c-1)$$

Critical values for chi-squared distribution

	Level of significance for a one-tailed test					
	0.10	**0.05**	**0.025**	**0.01**	**0.005**	**0.0005**
	Level of significance for a two-tailed test					
df	**0.20**	**0.10**	**0.05**	**0.025**	**0.01**	**0.001**
1	1.64	2.71	3.84	5.02	6.64	10.83
2	3.22	4.61	5.99	7.38	9.21	13.82
3	4.64	6.25	7.82	9.35	11.35	16.27
4	5.99	7.78	9.49	11.14	13.28	18.47
5	7.29	9.24	11.07	12.83	15.09	20.52
6	8.56	10.65	12.59	14.45	16.81	22.46
7	9.80	12.02	14.07	16.01	18.48	24.32
8	11.03	13.36	15.51	17.54	20.09	26.12
9	12.24	14.68	16.92	19.02	21.67	27.88
10	13.44	15.99	18.31	20.48	23.21	29.59
11	14.63	17.28	19.68	21.92	24.73	31.26
12	15.81	18.55	21.03	23.34	26.22	32.91
13	16.99	19.81	22.36	24.74	27.69	34.53
14	18.15	21.06	23.69	26.12	29.14	36.12
15	19.31	22.31	25.00	27.49	30.58	37.70
16	20.47	23.54	26.30	28.85	32.00	39.25
17	21.62	24.77	27.59	30.19	33.41	40.79
18	22.76	25.99	28.87	31.53	34.81	42.31
19	23.90	27.20	30.14	32.85	36.19	43.82
20	25.04	28.41	31.41	34.17	37.57	45.32
21	26.17	29.62	32.67	35.48	38.93	46.80
22	27.30	30.81	33.92	36.78	40.29	48.27
23	28.43	32.01	35.17	38.08	41.64	49.73
24	29.55	33.20	36.42	39.36	42.98	51.18
25	30.68	34.38	37.65	40.65	44.31	52.62
26	31.80	35.56	38.89	41.92	45.64	54.05
27	32.91	36.74	40.11	43.20	46.96	55.48
28	34.03	37.92	41.34	44.46	48.28	56.89
29	35.14	39.09	42.56	45.72	49.59	58.30
30	36.25	40.26	43.77	46.98	50.89	59.70
40	47.27	51.81	55.76	59.34	63.69	73.40
50	58.16	63.17	67.51	71.42	76.15	86.66
60	68.97	74.40	79.08	83.30	88.38	99.61
70	79.72	85.53	90.53	95.02	100.43	112.32

The calculated value must be equal to or exceed the critical value in this table for significance to be shown.

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Wilcoxon Signed Ranks test process

- Calculate the difference between two scores by taking one from the other
- Rank the differences giving the smallest difference Rank 1

  Note: do not rank any differences of 0 and when adding the number of scores, do not count those with a difference of 0, and ignore the signs when calculating the difference
- Add up the ranks for positive differences
- Add up the ranks for negative differences
- T is the figure that is the smallest when the ranks are totalled (may be positive or negative)
- N is the number of scores left, ignore those with 0 difference

Critical values for the Wilcoxon Signed Ranks test

	Level of significance for a one-tailed test		
	0.05	0.025	0.01
	Level of significance for a two-tailed test		
n	0.1	0.05	0.02
N=5	0	–	–
6	2	0	–
7	3	2	0
8	5	3	1
9	8	5	3
10	11	8	5
11	13	10	7
12	17	13	9

The calculated value must be equal to or less than the critical value in this table for significance to be shown.

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SECTION A

Answer ALL questions in this section. Write your answers in the spaces provided.

1 Diana is 17 years of age and lives with her grandparents who are in their seventies.

(a) Identify which of Erikson's stages of psychosocial development Diana and her grandparents are presently experiencing.

(2)

Diana

Identity versus role confusion

Grandparents

Integrity versus despair

Diana's brother is in the Industry versus Inferiority stage of psychosocial development.

(b) State **two** typical behaviours Diana's brother may demonstrate in this stage.

(2)

1 *He may work hard at school to complete tasks and please his teacher, feeling proud and competent when he succeeds.*

2 *He may not try hard at school if he feels inadequate and inferior compared with his peers, eg avoiding tasks he thinks he will fail.*

(Total for Question 1 = 4 marks)

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2 Chomsky claimed that children learn language through a language acquisition device (LAD).

(a) State what is meant by the concept of language acquisition device (LAD).

(2)

The LAD is a hypothetical, innate mechanism hardwired into the brain that contains universal grammar. It helps children to rapidly learn and understand language from the speech they hear around them.

Two studies into Chomsky's language acquisition device (LAD) found that an infant's active vocabulary developed gradually with age. Study A tested 18 children in 1973. Twenty years later, in 1993, Study B tested 1,789 children.

(b) Justify why **Study B** is more representative.

(2)

Study B is more recent (1993), so it reflects the language development of more modern children. It also has a much larger sample of 1,789 children compared with only 18 in Study A, so it covers a wider range of the population and individual differences are less likely to distort the results.

(c) Explain **one** weakness of the concept of language acquisition device (LAD).

(2)

There is no physical evidence that a language acquisition device exists in the brain, so the concept cannot be directly tested and is unfalsifiable. It also ignores the role of interaction: Bruner (1983) argued that a language acquisition support system (LASS) from caregivers is actually needed for language development.

(Total for Question 2 = 6 marks)

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3 Alessandro and Monik investigated whether exposure to physical aggression would influence behaviour amongst five-year-old children. They tested 11 male and 11 female children in a laboratory setting.

The mean numbers of imitative physical aggressive acts that are copied by the children from adult role models are shown in **Table 1**.

Gender of children	Female aggressive adult role model	Male aggressive adult role model
Female	5.5	7.2
Male	12.4	25.8

Table 1

(a) Calculate the **total mean** number of imitative physical aggressive acts copied from all aggressive adult role models by male children.

Give your answer to **one** decimal place.

(1)

SPACE FOR CALCULATIONS

Male children: female model 12.4, male model 25.8

(12.4 + 25.8) ÷ 2 = 38.2 ÷ 2 = 19.1

Total mean number *19.1*

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(b) Explain how the results of this study support social learning theory as an explanation of antisocial behaviour.

(4)

Social learning theory claims behaviour is learned by observing and imitating role models, especially same-gender models we identify with. Male children copied a mean of 25.8 aggressive acts from the male role model compared with 12.4 from the female model, so boys imitated the same-gender model more, supporting the claim that same-gender models are more likely to be imitated. Girls also copied more from the male model (7.2) than the female model (5.5), supporting Bandura's claim that physical aggression is more likely to be imitated from a male model because it is seen as more gender-appropriate for males.

(c) State **one** weakness of Alessandro and Monik's study.

(1)

The study took place in an artificial laboratory setting, which is not where children would normally learn behaviours, so it lacks ecological validity.

(Total for Question 3 = 6 marks)

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4 Rebecca is a one-year-old child who has been in hospital for five weeks. There are limited visiting hours in the hospital and her mother, Danielle, has to be at home to look after Rebecca's brother.

Danielle is worried that this separation from Rebecca will affect their attachment.

Discuss, using Bowlby's theory of attachment, the effects this separation may have on Rebecca.

(8)

Bowlby argued that attachment is innate: children are biologically pre-programmed to form an attachment to a primary caregiver because it helps them survive. Monotropy means the infant forms one special bond, usually with the mother. Rebecca is one year old, so she will need her mother for comfort and survival, but in hospital she will only have hospital staff, who change shifts, to look after her.

Bowlby claimed there is a critical period for bonding, before a child is about 30 months old. Rebecca is well inside this period, and five weeks is a long separation for a baby, so the separation could prevent a secure bond forming or break the bond that is developing. A secure attachment needs caregiver and child to reciprocate affection, but because of the limited visiting hours and her brother at home, Danielle cannot be there to respond when Rebecca is distressed, which limits their opportunities to attach.

Robertson and Bowlby described a short-term response to separation in hospital: protest (crying for the mother), then despair (becoming quiet and withdrawn), then detachment, where the child seems settled but rejects the mother when she returns. Rebecca may show these stages, so Danielle may find Rebecca cold towards her on visits, which would explain her worry.

In the long term, the maternal deprivation hypothesis predicts lasting harm. Bowlby's 44 juvenile thieves study linked early separation to affectionless psychopathy. Failing to form an attachment would also leave Rebecca with a poor internal working model, so she may develop relationship

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difficulties in later life.

However, these effects are not inevitable. Rebecca still sees her mother during visiting hours, so this is deprivation, not privation, and Rutter argued short-term deprivation can be reversed by good care afterwards. If nurses give her consistent, sensitive care and she has other attachments, eg to her father or brother, Schaffer and Emerson (1964) showed multiple attachments are normal, so the effects may be limited. Overall, Bowlby's theory suggests Rebecca is at risk, but her mother can reduce this by visiting as often as possible.

(Total for Question 4 = 8 marks)

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5 Evaluate whether research involving children can be conducted with sufficient ethical considerations.

(8)

Research with children raises special ethical issues because they are vulnerable. Children under 16 are usually unable to give fully informed consent, so researchers must obtain consent from parents or guardians, and should still ask for the child's agreement. The BPS Code of Ethics and Conduct states that participants should not be distressed or harmed and must have the right to withdraw. Children's participation should also consider the UNCRC (United Nations Convention on the Rights of the Child), which says children's best interests come first. Researchers must also be competent enough to deal with any issues that arise with children.

Some research suggests sufficient ethical care can be taken. In Ainsworth's Strange Situation (1969) the mothers gave full consent and could stop the procedure if their child became too distressed, and episodes were cut short when needed. Each episode lasted only about three minutes, so any distress was short term.

However, the Strange Situation was still criticised as unethical because it deliberately caused distress to infants by separating them from their mother and leaving them with a stranger. Watson and Rayner (1920) caused clear distress to Little Albert by conditioning a fear of a white rat, and they did not remove the fear before he left, so he was not protected from harm. In Curtiss (1977) the researchers believed they were improving Genie's quality of life, but she could not give consent and the research may have exploited her, showing that good intentions do not guarantee ethical research.

Modern guidelines are much stricter than when these older studies were carried out, as ethics committees now review research and the UNCRC and BPS codes protect children. However, a cost-benefit judgement is still needed, and it is hard to know how much distress a young child

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is feeling, as they may not be able to say so.

In conclusion, research with children can be conducted with sufficient ethical considerations if parental consent, the right to withdraw and protection from harm are strictly followed, but older studies show this has not always happened, so careful monitoring is essential.

(Total for Question 5 = 8 marks)

TOTAL FOR SECTION A = 32 MARKS

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SECTION B

Answer ALL questions from EITHER OPTION 1: CRIMINOLOGICAL PSYCHOLOGY or OPTION 2: HEALTH PSYCHOLOGY.

Indicate which question you are answering by marking a cross in the box ☒. If you change your mind, put a line through the box ☒ and then indicate your new answer with a cross ☒.

If you answer Questions in Option 1 put a cross in the box ☒ .

OPTION 1: CRIMINOLOGICAL PSYCHOLOGY

Write your answers in the spaces provided.

6 Cognitive behavioural therapy (CBT) is used as a treatment for offenders.

(a) Define cognitive behavioural therapy (CBT) as a treatment for offenders.

(1)

CBT is a talking therapy that helps offenders manage their antisocial behaviour by changing the way they think, eg challenging distorted thoughts, and so changing how they behave.

(b) State **one** strength of cognitive behavioural therapy (CBT) as a treatment for offenders.

(1)

There is evidence it works: Lipsey et al. (2007) found that CBT reduced recidivism (reoffending) in offenders.

(Total for Question 6 = 2 marks)

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7 A psychologist investigated the use of cognitive interviews and standard interviews when asking participants to recall information.

The results are shown in **Table 2**.

Participant	Number of correct items recalled in a cognitive interview	Number of correct items recalled in a standard interview
1	45	6
2	48	8
3	36	10
4	34	9
5	44	9
6	39	9
7	48	8
8	56	7
9	46	8
10	54	6

Table 2

(a) Calculate the **median** for the number of correct items recalled in a **standard interview**.

(1)

Space for calculations

In order: 6, 6, 7, 8, 8, 8, 9, 9, 9, 10

Median = (8 + 8) ÷ 2 = 8

Median for the number of correct items 8

(b) Give **one** conclusion that can be drawn from the data in **Table 2**.

(1)

Cognitive interviews are more successful at eliciting accurate recall, as every participant recalled more correct items in the cognitive interview (34 to 56) than in the standard interview (6 to 10).

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(c) Calculate the **standard deviation** for the number of correct items recalled as shown in **Table 3**. You must give your answer to **two** decimal places.

The formula can be found in the formulae and statistical tables at the front of this paper.

You must show your working.

(2)

Participant	Number of correct items recalled	$x - \bar{x}$	$(x - \bar{x})^2$
1	45	0	0
2	48	–3	9
3	36	9	81
4	34	11	121
5	44	1	1
6	39	6	36
7	48	–3	9
8	56	–11	121
9	46	–1	1
10	54	–9	81
Total sum	450		460
Mean score of correct number of items recalled = 45			

Table 3

Space for calculations

$s = \sqrt{(\Sigma(x - \bar{x})^2 \div (n - 1))}$

$= \sqrt{(460 \div (10 - 1))} = \sqrt{(460 \div 9)}$

$= \sqrt{51.11}$

$= 7.149... = 7.15$ (2 d.p.)

Standard deviation 7.15

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(d) Explain **two** strengths of using a cognitive interview.

(4)

Strength 1

Cognitive interviews are more in-depth and detailed than standard interviews, as they use broad, open-ended questions and ask the witness to report everything, even details that seem unimportant. This means fewer details are missed and the recall is less shaped by the interviewer, giving a more valid account of events.

Strength 2

The witness recalls the incident from a variety of perspectives and in different orders before being asked any direct questions. This reduces bias and leading questions from the interviewer, so the information recalled is more reliable and less likely to be distorted.

(Total for Question 7 = 8 marks)

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8 Benito and Giovanni investigated the number of prisoners who completed a course of cognitive behaviour therapy (CBT). The treatment was due to last 15 weeks in total.

Table 4 shows the number of participants who remained in the treatment at various time intervals.

Number of weeks into treatment	Number of prisoners
0	50
5	35
10	30
15	25

Table 4

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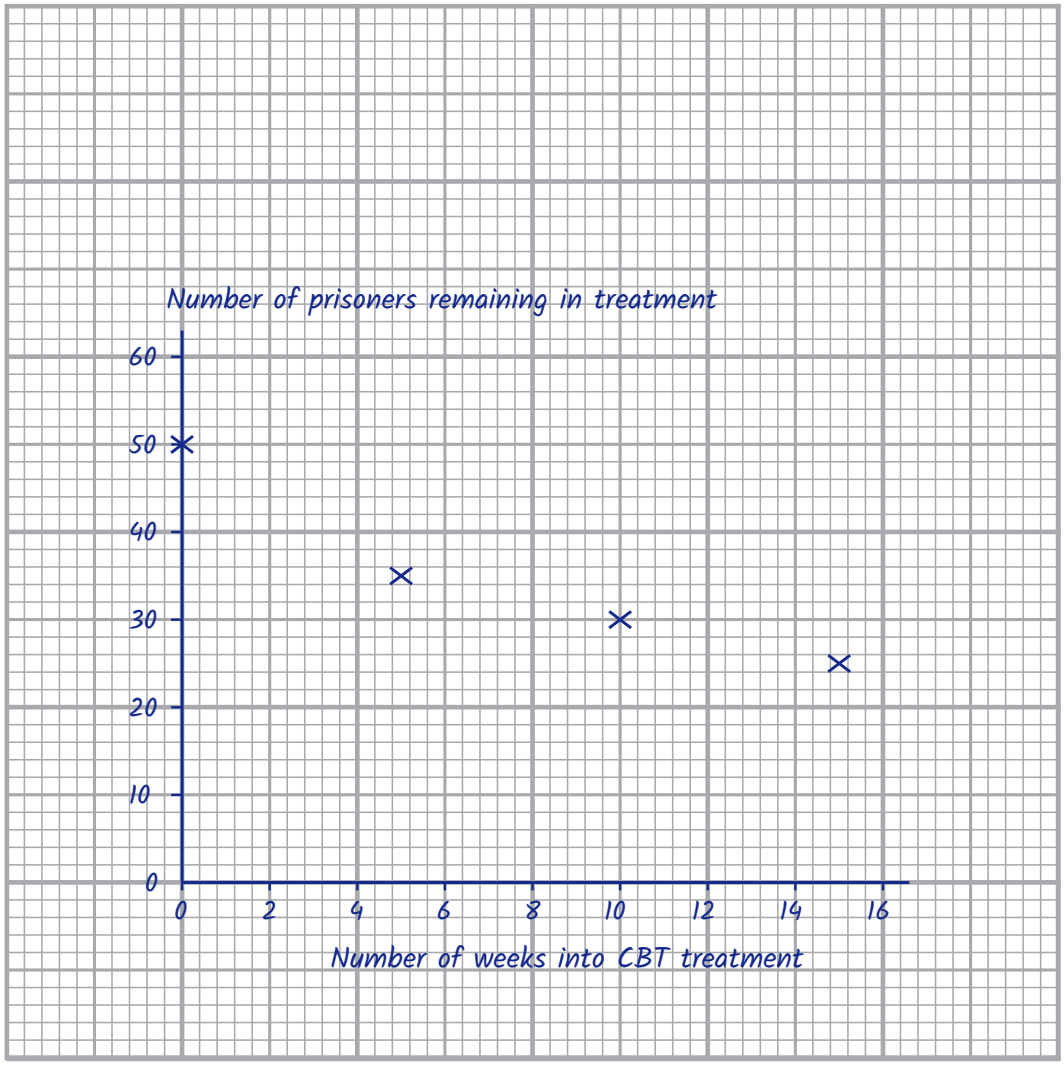
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(a) Draw a scatter diagram to illustrate the data in **Table 4**.

(3)

Title

Scatter diagram to show the number of prisoners remaining in CBT by week



(b) State **one** conclusion that could be drawn from the data in **Table 4**.

(1)

CBT has a high dropout rate amongst prisoners, as only 25 of the 50 (50%) completed the 15 weeks of treatment.

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Benito and Giovanni used self-report questionnaires to gather their data.

(c) Explain **one** weakness of self-report questionnaires.

(2)

Prisoners may not answer honestly because of social desirability, eg giving answers that make them look cooperative or hide the real reason they left. This leads to invalid results that may not reflect the genuine reasons for leaving the CBT treatment.

(Total for Question 8 = 6 marks)

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9 Assess how far self-fulfilling prophecy can explain criminal and antisocial behaviour.

(8)

A self-fulfilling prophecy occurs when an expectation about a person leads to them behaving in a way that makes the expectation come true. A person may be labelled as antisocial because of a trait they have, such as their appearance, background or a minor offence. Once labelled, they are treated differently, for example watched more closely by police and teachers or given fewer opportunities. They may then internalise the label, see themselves as a criminal and behave accordingly, which confirms the original expectation.

There is supporting evidence. Jahoda (1954) studied the Ashanti, who name boys after the day of the week they are born: Monday boys are expected to be calm, while Wednesday boys are expected to be aggressive. Males born on a Wednesday had a significantly higher arrest rate for violent offences (22%) than males born on a Monday (6%), suggesting the expectation attached to the name had become a self-fulfilling prophecy. Rosenthal and Jacobson (1968) found that children randomly labelled as 'bloomers' improved their IQ and continued to improve over the next two years, showing that teacher expectations change behaviour, so the same may be true for criminal labelling. Madon et al. (2004) also found that parents' expectations about their children's alcohol use predicted the children's later drinking.

However, these studies are correlational: they show a link between expectations and outcomes, but the cause could be many other factors, such as poverty or family background. Jahoda's data came from one culture and Rosenthal and Jacobson studied IQ, not crime, so generalising to criminal behaviour is limited. Ethically, we cannot experimentally label people as criminals to test the theory.

Also, not everybody internalises the labels other people assign to them; some people reject a

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label and work to prove it wrong, so the theory cannot explain why only some labelled people offend. It also cannot explain the first offence that caused the label, so other explanations such as social learning theory or biological factors are needed.

Overall, self-fulfilling prophecy can explain how labelling maintains and increases criminal and antisocial behaviour for some individuals, but it is only a partial explanation, as the evidence is correlational and the initial behaviour must be explained by other factors.

(Total for Question 9 = 8 marks)

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10 Evaluate the contemporary study by Bradbury and Williams (2013).

(8)

Bradbury and Williams (2013) investigated whether the racial composition of a jury affects its verdict. They used secondary data from real court trials that took place in the USA in 2000 and 2001, rather than mock juries. The defendants in the trials analysed were black and the jurors were multi-ethnic. They found that juries with a high percentage of white jurors were more likely to convict black defendants, while a higher proportion of black jurors made a conviction of a black defendant less likely.

A strength is high ecological validity. The data came from real-life trials, where jurors knew their decision had real consequences for the defendant, so the findings are more likely to apply to other real jury decisions than mock jury studies, where participants may not take the task seriously.

The study also has strong practical applications. It suggests the criminal justice system in America should change policies on jury composition, for example making sure juries are racially diverse, so that defendants receive a fairer trial.

However, because secondary data was used, the researchers could not control extraneous variables such as the strength of the evidence, the type of crime or the quality of the lawyers, so they cannot be certain that the race of the jurors caused the verdict. The study is correlational, so cause and effect cannot be established.

The data was also outdated, as there were 12 years between the trials and the publication of the study, so attitudes to race may have changed and the findings may no longer represent the outcomes of jury trials. There is low generalisability to all trials due to the biased nature of the

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sample, as only black defendants in the USA were considered, so the results may not apply to defendants of other ethnicities or to other countries.

In conclusion, Bradbury and Williams (2013) provides valid real-world evidence that juror race can influence verdicts, with useful practical applications, but the lack of control, outdated data and narrow sample mean the conclusions should be treated with some caution.

(Total for Question 10 = 8 marks)

TOTAL FOR SECTION B OPTION 1 = 32 MARKS

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SECTION B

If you answer Questions in Option 2 put a cross in the box ☒ .

OPTION 2: HEALTH PSYCHOLOGY

Write your answers in the spaces provided.

11 Some personality types are more likely to suffer from stress.

Define what is meant by 'Type A personality' in relation to stress.

Type A is a personality type that is time-driven, competitive, impatient and focused on achievement, which may lead to high stress and a greater risk of stress-related illness such as heart disease.

(Total for Question 11 = 1 mark)

12 Mateus and Marissa conducted research to investigate life events and levels of stress. They asked students to complete a self-report questionnaire a month before their final examinations, and again when they were undertaking their final examinations. The results of their investigation are shown in **Table 5**.

Participant	Stress score before examinations	Stress score during examinations
1	45	60
2	38	55
3	48	65
4	50	68
5	37	48
6	43	50
7	43	57
8	52	63
9	39	58
10	32	46

Table 5

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(a) Calculate the **median** stress score for the participants **before** their examinations.

(1)

Space for calculations

In order: 32, 37, 38, 39, 43, 43, 45, 48, 50, 52

Median = (43 + 43) ÷ 2 = 43

Median stress score 43

(b) State **two** conclusions that can be drawn from the data in **Table 5**.

(2)

1 Examinations cause students' stress levels to increase, as every participant had a higher stress score during the examinations than before them.

2 The more stressed students are before the examinations, the more stressed they tend to be during the examinations (eg participant 4: 50, then 68).

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(c) Calculate the **standard deviation** for the stress scores during examinations as shown in **Table 6**. You must give your answer to **two** decimal places.

The formula can be found in the formulae and statistical tables at the front of the paper.

You must show your working.

(2)

Participant	Stress score during examinations	$x - \bar{x}$	$(x - \bar{x})^2$
1	60	–3	9
2	55	2	4
3	65	–8	64
4	68	–11	121
5	48	9	81
6	50	7	49
7	57	0	0
8	63	–6	36
9	58	–1	1
10	46	11	121
Total Sum	570		486
Mean stress level for participants during their final exams = 57			

Table 6

Space for calculations

$s = \sqrt{(\Sigma(x - \bar{x})^2 \div (n - 1))}$

$= \sqrt{(486 \div (10 - 1))} = \sqrt{(486 \div 9)}$

$= \sqrt{54}$

$= 7.348... = 7.35$ (2 d.p.)

Standard deviation 7.35

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(d) Explain **two** strengths of using a self-report questionnaire.

(4)

Strength 1

Self-report questionnaires allow participants to describe their own experiences and feelings, such as how stressed they feel, rather than the researcher inferring this from observing them. This means the data is more valid, as stress is a personal, internal state that only the participant can fully report.

Strength 2

Self-report questionnaires can be given to a large number of participants quickly and cheaply, and closed questions produce quantitative data that is easy to compare. This means a large, more representative sample can be gathered and the results can be statistically analysed, eg comparing scores before and during exams.

(Total for Question 12 = 9 marks)

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13 Ronnie and Presley investigated stress levels in participants during their final year of work before retiring. Stress levels were scored out of 50.

Table 7 shows the results of Ronnie and Presley's investigation.

Participant	Condition A Stress level at the beginning of the final year of working	Condition B Stress level in the final month of working
1	10	30
2	5	15
3	15	45
4	35	50
5	20	30

Table 7

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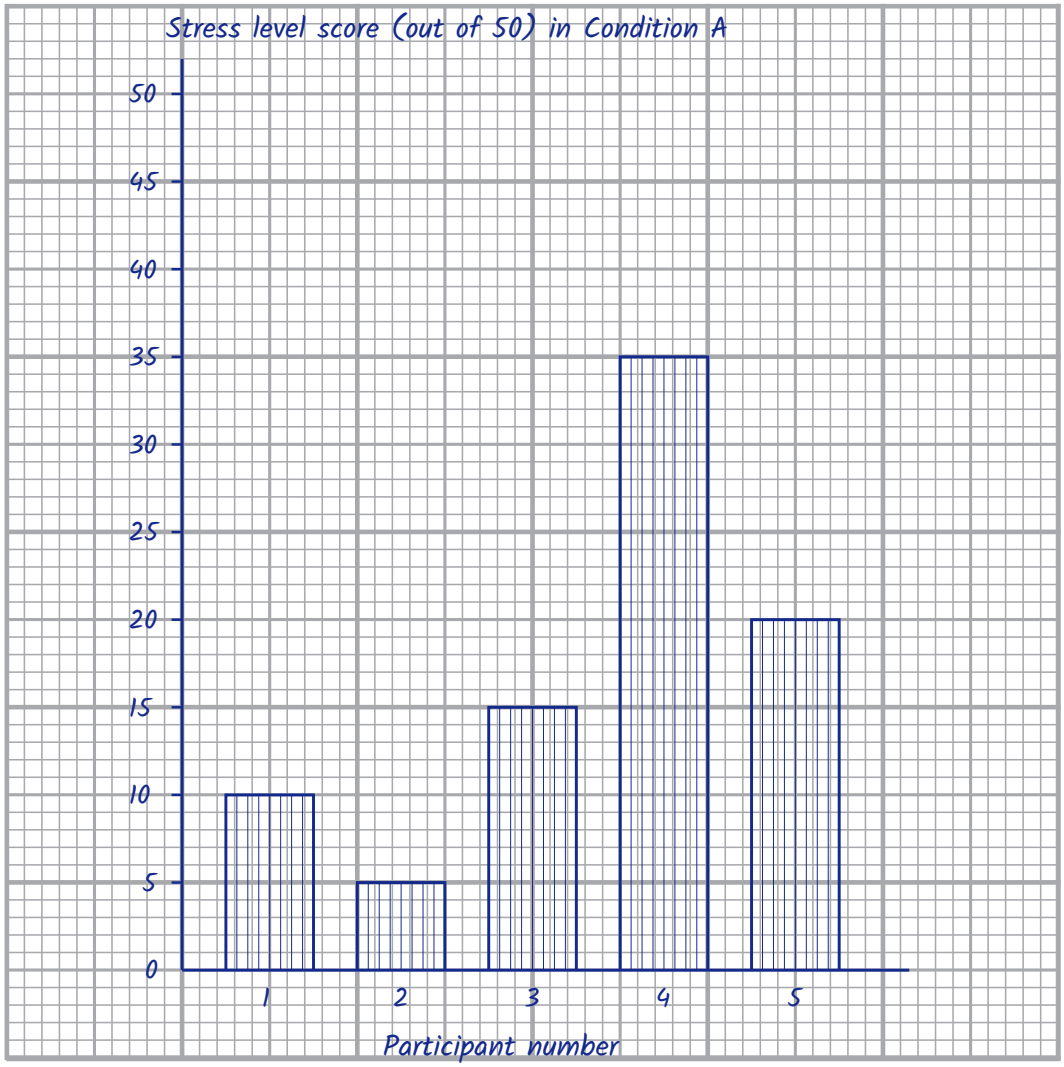
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(a) Draw a bar chart to illustrate the data for **Condition A** in **Table 7**.

(3)

Title

Bar chart to show the stress level of participants at the start of their final year



(b) State **one** conclusion that could be drawn from the data in **Table 7**.

(1)

Stress increases as people get closer to retirement, as every participant scored higher in their final month of working (Condition B) than at the start of the year.

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Stress can be measured using the Holmes and Rahe stress scale.

(c) Explain **one** weakness of the Holmes and Rahe stress scale.

(2)

The scale gives every life event a fixed value in life change units, so it ignores individual differences in how people appraise events. For example, retiring may be very stressful for one person but a relief for another, so the score may not be a valid measure of the stress each person actually feels.

(Total for Question 13 = 6 marks)

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14 Evaluate whether physiological explanations can fully explain stress.

(8)

Physiological explanations see stress as a bodily response. In the short term the SAM system releases adrenaline for fight or flight. For prolonged stress the HPA axis is activated: the hypothalamus stimulates the pituitary gland to secrete ACTH, which stimulates the adrenal cortex to produce cortisol. Cortisol keeps blood sugar steady to help the person cope, but it suppresses the immune system. Selye's General Adaptation Syndrome describes three stages: alarm, when a threat is registered and hormones change; resistance; and exhaustion, which occurs if the stress is repeated or long lasting, leading to illness.

There is supporting evidence. Kiecolt-Glaser et al. (1984) found that medical students had lower immune functioning (natural killer cell activity) during exams, a natural experiment showing short-term stressors reduce immunity. Segerstrom and Miller (2004), a meta-analysis of 293 studies, found that acute stressors could boost the immune system but long-term stressors suppressed it, matching the GAS. Brady (1958) found executive monkeys developed ulcers and died, supporting exhaustion. This gives the explanations scientific credibility.

However, Kiecolt-Glaser's medical students are not representative of the wider population, and much of Selye's and Brady's evidence came from animals such as rats and monkeys, which may not represent human reactions to stress, so generalisation is limited.

Physiological explanations also cannot fully explain stress because they ignore cognitive and social factors. Taylor et al. (2000) proposed tend and befriend: females may respond to stress by protecting others and seeking social support, with oxytocin reducing cortisol, so the response is not only fight or flight. Cognitive psychologists explain stress as the result of negative, faulty thought patterns; Lazarus argued stress depends on how a person appraises a stressor and their

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ability to cope, explaining why two people react differently to the same event. Beck and Weishaar (2010) showed cognitive techniques that treat faulty thinking reduce stress, so cognitive factors can cause stress.

In conclusion, physiological explanations accurately describe the body's stress response and its effects on health, but they are reductionist and cannot fully explain stress, as individual appraisal and social support also determine how stressed a person becomes.

(Total for Question 14 = 8 marks)

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15 Evaluate the classic study by Brady (1958).

(8)

Brady (1958) investigated whether stress causes stomach ulcers using rhesus monkeys placed in pairs in restraining chairs. Both monkeys received electric shocks every 20 seconds, but only the executive monkey could press a lever to avoid the shock for both of them; the other (yoked) monkey had no control. Monkeys were allocated to the executive role according to how quickly they learned to avoid the shock in a pilot. The monkeys experienced shocks for 6 hours, followed by 6 hours of rest, over about three weeks. The executive monkeys developed ulcers and some died, while the yoked monkeys did not, so Brady concluded that the stress of having responsibility and control caused the ulcers.

A strength is that it was a well-controlled lab experiment; both monkeys received the same number of shocks, so the only difference was control, which supports a cause and effect relationship and gives physiological evidence supporting the exhaustion stage of Selye's GAS.

However, monkeys were not randomly allocated. The executives were the faster learners, who may have been more emotional or more anxious, so the experimental design is biased and the conclusions are less valid. The executive monkeys were also not given any warning of when the shock would come, so they had to stay constantly alert. Weiss (1972) found that a warning signal reduced the likelihood of rats developing stress-related stomach ulcers, and that rats with control developed fewer ulcers than helpless rats, contradicting Brady.

Brady only tested non-human animals, and monkeys may not react to stress in the same way as humans, who can use cognitive appraisal, so generalisation from animal studies to human beings is limited. The study can also be considered unethical according to the Animals (Scientific Procedures) Act 1986, as the monkeys were caused severe suffering and some of the

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executive monkeys died.

Overall, Brady (1958) was influential in linking stress to physical illness, but its biased allocation, contradictory later evidence and serious ethical problems mean its conclusions about control causing stress are not reliable.

(Total for Question 15 = 8 marks)

TOTAL FOR SECTION B OPTION 2 = 32 MARKS
TOTAL FOR PAPER = 64 MARKS

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