

Please check the examination details below before entering your candidate information

Candidate surname <i>StemUp Model Solution</i>		Other names
Centre Number	Candidate Number	

Pearson Edexcel Level 3 GCE

Thursday 25 May 2023

Afternoon (Time: 2 hours)

Paper reference **9PS0/02**

Psychology

Advanced

PAPER 2: Applications of psychology

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**.
- Answer ALL questions from **one** of the three options in Section **B**.
- Answer the questions in the spaces provided
– *there may be more space than you need.*

Information

- The total mark for this paper is 90.
- 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.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

P71919RA

©2023 Pearson Education Ltd.
N:1/1/1/1/1



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.



Chi-squared distribution formula

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

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.

Mann-Whitney U test formulae

$$U_a = n_a n_b + \frac{n_a(n_a+1)}{2} - \sum R_a$$

$$U_b = n_a n_b + \frac{n_b(n_b+1)}{2} - \sum R_b$$

(U is the smaller of U_a and U_b)

Critical values for the Mann-Whitney U test

N_a	N_b															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
$p \leq 0.05$ (one-tailed), $p \leq 0.10$ (two-tailed)																
5	4	5	6	8	9	11	12	13	15	16	18	19	20	22	23	25
6	5	7	8	10	12	14	16	17	19	21	23	25	26	28	30	32
7	6	8	11	13	15	17	19	21	24	26	28	30	33	35	37	39
8	8	10	13	15	18	20	23	26	28	31	33	36	39	41	44	47
9	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54
10	11	14	17	20	24	27	31	34	37	41	44	48	51	55	58	62
11	12	16	19	23	27	31	34	38	42	46	50	54	57	61	65	69
12	13	17	21	26	30	34	38	42	47	51	55	60	64	68	72	77
13	15	19	24	28	33	37	42	47	51	56	61	65	70	75	80	84
14	16	21	26	31	36	41	46	51	56	61	66	71	77	82	87	92
15	18	23	28	33	39	44	50	55	61	66	72	77	83	88	94	100
16	19	25	30	36	42	48	54	60	65	71	77	83	89	95	101	107
17	20	26	33	39	45	51	57	64	70	77	83	89	96	102	109	115
18	22	28	35	41	48	55	61	68	75	82	88	95	102	109	116	123
19	23	30	37	44	51	58	65	72	80	87	94	101	109	116	123	130
20	25	32	39	47	54	62	69	77	84	92	100	107	115	123	130	138



N_a	N_b															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
$p \leq 0.01$ (one-tailed), $p \leq 0.02$ (two-tailed)																
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
6	2	3	4	6	7	8	9	11	12	13	15	16	18	19	20	22
7	3	4	6	7	9	11	12	14	16	17	19	21	23	24	26	28
8	4	6	7	9	11	13	15	17	20	22	24	26	28	30	32	34
9	5	7	9	11	14	16	18	21	23	26	28	31	33	36	38	40
10	6	8	11	13	16	19	22	24	27	30	33	36	38	41	44	47
11	7	9	12	15	18	22	25	28	31	34	37	41	44	47	50	53
12	8	11	14	17	21	24	28	31	35	38	42	46	49	53	56	60
13	9	12	16	20	23	27	31	35	39	43	47	51	55	59	63	67
14	10	13	17	22	26	30	34	38	43	47	51	56	60	65	69	73
15	11	15	19	24	28	33	37	42	47	51	56	61	66	70	75	80
16	12	16	21	26	31	36	41	46	51	56	61	66	71	76	82	87
17	13	18	23	28	33	38	44	49	55	60	66	71	77	82	88	93
18	14	19	24	30	36	41	47	53	59	65	70	76	82	88	94	100
19	15	20	26	32	38	44	50	56	63	69	75	82	88	94	101	107
20	16	22	28	34	40	47	53	60	67	73	80	87	93	100	107	114

N_a	N_b															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
$p \leq 0.025$ (one-tailed), $p \leq 0.05$ (two-tailed)																
5	2	3	5	6	7	8	9	11	12	13	14	15	17	18	19	20
6	3	5	6	8	10	11	13	14	16	17	19	21	22	24	25	27
7	5	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
8	6	8	10	13	15	17	19	22	24	26	29	31	34	36	38	41
9	7	10	12	15	17	20	23	26	28	31	34	37	39	42	45	48
10	8	11	14	17	20	23	26	29	33	36	39	42	45	48	52	55
11	9	13	16	19	23	26	30	33	37	40	44	47	51	55	58	62
12	11	14	18	22	26	29	33	37	41	45	49	53	57	61	65	69
13	12	16	20	24	28	33	37	41	45	50	54	59	63	67	72	76
14	13	17	22	26	31	36	40	45	50	55	59	64	67	74	78	83
15	14	19	24	29	34	39	44	49	54	59	64	70	75	80	85	90
16	15	21	26	31	37	42	47	53	59	64	70	75	81	86	92	98
17	17	22	28	34	39	45	51	57	63	67	75	81	87	93	99	105
18	18	24	30	36	42	48	55	61	67	74	80	86	93	99	106	112
19	19	25	32	38	45	52	58	65	72	78	85	92	99	106	113	119
20	20	27	34	41	48	55	62	69	76	83	90	98	105	112	119	127

N_a	N_b															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
$p \leq 0.005$ (one-tailed), $p \leq 0.01$ (two-tailed)																
5	0	1	1	2	3	4	5	6	7	7	8	9	10	11	12	13
6	1	2	3	4	5	6	7	9	10	11	12	13	15	16	17	18
7	1	3	4	6	7	9	10	12	13	15	16	18	19	21	22	24
8	2	4	6	7	9	11	13	15	17	18	20	22	24	26	28	30
9	3	5	7	9	11	13	16	18	20	22	24	27	29	31	33	36
10	4	6	9	11	13	16	18	21	24	26	29	31	34	37	39	42
11	5	7	10	13	16	18	21	24	27	30	33	36	39	42	45	48
12	6	9	12	15	18	21	24	27	31	34	37	41	44	47	51	54
13	7	10	13	17	20	24	27	31	34	38	42	45	49	53	56	60
14	7	11	15	18	22	26	30	34	38	42	46	50	54	58	63	67
15	8	12	16	20	24	29	33	37	42	46	51	55	60	64	69	73
16	9	13	18	22	27	31	36	41	45	50	55	60	65	70	74	79
17	10	15	19	24	29	34	39	44	49	54	60	65	70	75	81	86
18	11	16	21	26	31	37	42	47	53	58	64	70	75	81	87	92
19	12	17	22	28	33	39	45	51	56	63	69	74	81	87	93	99
20	13	18	24	30	36	42	48	54	60	67	73	79	86	92	99	105

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



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

<i>n</i>	Level of significance for a one-tailed test		
	0.05	0.025	0.01
	Level of significance for a two-tailed test		
	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.

SECTION A

Clinical Psychology

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

- 1 In your studies of clinical psychology, you will have learned about classification systems for mental health.
- (a) Define the term 'reliability' in relation to classification systems used for diagnosing mental health.

(1)

Reliability is the consistency of diagnosis, so a classification system such as DSM-5 is reliable if different clinicians give the same patient the same diagnosis (inter-rater reliability), or the same diagnosis is made again over time.

- (b) Explain **two** reasons why classification systems for mental health may not be valid.

(4)

- 1 *Different classification systems such as DSM and ICD may give a different diagnosis to a person showing the same symptoms, so they may lack concurrent validity. Cooper et al. (1972) found that psychiatrists in New York diagnosed schizophrenia about twice as often as psychiatrists in London when shown the same patients, who were more often diagnosed with mania or depression in London.*

- 2 *Classification systems cannot always accurately predict how a patient will respond to treatment, so they may lack predictive validity. Kuyken et al. (2008) found that patients diagnosed with recurrent depression who had MBCT relapsed less (47%) than those kept on antidepressants (60%), and 75% stopped their antidepressants, so the diagnosis did not predict who the drugs would work for.*

(Total for Question 1 = 5 marks)



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

BLANK PAGE



- 2 Charles conducted an investigation to see whether therapy delivered online was as effective as therapy delivered face to face (in person). If people were interested in taking part in Charles's investigation, they could contact him.

His participants came from a variety of different therapists and had a range of different mental health disorders. The participants were separated into two groups.

- Condition A: the therapy was delivered online.
- Condition B: the therapy was delivered face to face (in person).

Every participant had completed eight weeks of therapy and Charles asked them if their mental health disorder had improved, stayed the same, or deteriorated.

- (a) Identify the dependent variable (DV) in Charles's investigation.

(1)

Whether each participant said their mental health disorder had improved, stayed the same or deteriorated after eight weeks of online or face to face therapy.

- (b) Charles used a volunteer sampling technique.

Explain **one** weakness of Charles using a volunteer sampling technique in his investigation.

(2)

Charles's sample may be biased, as only participants who felt they were responding well to their online or face to face therapy may have contacted him to take part.

This means his results may not be representative of all patients receiving online or face to face therapy, so it would be difficult to generalise his findings about which delivery is more effective.

- (c) Once Charles had collected his data, he conducted a chi-squared test.

State **one** reason why Charles used a chi-squared test to analyse his data.

(1)

The data was nominal, as each participant was put into a category of improved, stayed the same or deteriorated, and he was looking for a difference between conditions A and B.



- (d) Charles found an observed/calculated value of 3.23 where $df = 2$ when he calculated the chi-squared test for his investigation.

Explain whether Charles's results were significant for a one-tailed (directional) hypothesis when $p \leq 0.05$.

(2)

Charles did not find a significant difference in the effectiveness of online and face to face (in person) therapy.

This is because his observed value of 3.23 is less than the critical value of 4.61 for a one-tailed test at $p \leq 0.05$ when $df = 2$. The observed value must be equal to or greater than the critical value, so he must retain the null hypothesis.

- (e) Explain **one** improvement Charles could make to his investigation.

(2)

Charles could use participants who all had the same therapist for both the online and the face to face therapy, which would improve the validity of his investigation.

This would ensure his results were not affected by participants' reactions to different therapists, so he could be more certain any difference in improvement was due to the way the therapy was delivered.

(Total for Question 2 = 8 marks)



3 You will have learned about the function of neurotransmitters as an explanation of schizophrenia.

(a) Describe the function of neurotransmitters as an explanation of schizophrenia.

(3)

The dopamine hypothesis states that people with schizophrenia have too much dopamine activity in the mesolimbic pathway, which leads to positive symptoms such as hallucinations and delusions, while low dopamine activity in the mesocortical pathway is linked to negative symptoms.

People with schizophrenia may have a higher number of D2 receptors on the post-synaptic neurons, so more dopamine binds to the receptors and neurons fire too often, leading to the symptoms of schizophrenia.

The glutamate hypothesis suggests that a decrease in glutamate activity at NMDA receptors means glutamate no longer inhibits dopamine release, which leads to an excess of dopamine in the mesolimbic pathway.

(b) Explain **one** strength of the function of neurotransmitters as an explanation of schizophrenia.

(2)

Carlsson et al. (2000) reviewed studies and proposed that glutamate and dopamine interact, which gives the explanation credibility, as the studies they reviewed found that NMDA antagonists such as PCP reduce glutamate functioning and increase the release of dopamine, producing schizophrenia-like symptoms.

(Total for Question 3 = 5 marks)



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

BLANK PAGE



4 Evaluate how issues around genes and mental health can affect development.

(8)

Many psychiatric disorders run in families, which suggests there is a genetic component to the development of mental health disorders. Several chromosomes, such as 1, 13, 15, 18 and 22, are thought to contain genes associated with an increased risk of schizophrenia, people with a first degree relative with depression may be up to three times more likely to develop depression in their lifetime than the general population, and chromosomes 1 and 10 have been linked to the development of eating disorders such as anorexia nervosa.

There is evidence that genes affect development. Gottesman (1991) found a concordance rate of 48% for schizophrenia in monozygotic (MZ) twins compared with 17% in dizygotic (DZ) twins, and as MZ twins share 100% of their genes, this suggests genes do affect the development of schizophrenia. Scott-Van Zeeland et al. (2013) found an association between the EPHX2 gene and anorexia, suggesting genes also play a role in eating disorders.

However, no study has found a 100% concordance rate, even between MZ twins, so genes cannot be the only factor, and the environment must also play a part. Twins also share an environment, so high concordance could partly be due to similar upbringing. The diathesis-stress model suggests a person inherits a vulnerability that only leads to a disorder if they experience environmental stressors.

Other explanations also challenge a genetic view. Beck's cognitive explanation says unipolar depression is caused by negative thoughts about the self, the world and the future, suggesting it is thought patterns, not genes, that lead to depression.

In conclusion, genes do appear to increase the risk of developing mental health disorders, but because concordance is never 100%, it is the interaction of genes with environmental factors that best explains how mental health disorders develop.



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(Total for Question 4 = 8 marks)



- 5 Lydia is a clinical psychologist. She is investigating the experiences of patients who attend the local mental health unit. Lydia has decided to use interviews to ask the patients about communication at the mental health unit and wants some feedback regarding the areas they think are effective as well as possible improvements.

Lydia interviews each patient individually and uses a variety of question types within her interviews. Once the interviews have been completed, Lydia collates her data and then reports on her findings to the manager of the mental health unit.

Discuss how Lydia could use interviews with the patients in the mental health unit.

You must make reference to the context in your answer.

(8)

Interviews are a self-report method used in clinical psychology to gather detailed information about people's experiences, such as the experiences of patients. Lydia is using interviews to gather detailed data about the patients' views and experiences of communication at the mental health unit, such as whether they feel listened to.

Interviews can be structured, where the same questions are asked in the same order to every patient, semi-structured, or unstructured. Lydia could use a semi-structured interview, so some questions, such as how well the staff explain their treatment, are the same for all patients and their answers can be compared, but she can adapt follow-up questions based on each patient's answers about what could be improved at the unit.

Interviews can use closed questions, such as yes/no questions or rating scales, which gather quantitative data. Lydia could ask closed questions such as 'Do you feel the staff speak to you with empathy?' or ask patients to rate communication from 1 to 10. This gives numerical data that she can easily analyse, for example as percentages, and include in her report to the manager of the mental health unit to show which areas need improving.

Open questions allow patients to answer in their own words, giving qualitative data that explains why they gave the answer they did. Lydia could ask open questions about what patients feel works well at the unit and why, so that the manager can



build on these areas once they have seen Lydia's report. She could analyse these answers using thematic analysis to find common themes, such as patients feeling rushed during appointments.

However, as Lydia works with the unit, patients may give socially desirable answers and say communication is good, so she should interview each patient privately and assure them their answers are confidential and anonymous in her report, which would make the feedback more valid.

(Total for Question 5 = 8 marks)



- 6 Henry has been referred to a psychiatrist and has been diagnosed with schizophrenia. Whilst talking to the psychiatrist he disclosed he has a variety of symptoms including hearing voices telling him he is not a good person. He also has delusions where he thinks he is a superhero and can save the world. Henry has also withdrawn from his family and friends and no longer goes out to see his local rugby team play. He does not get on with his parents as he feels they were not loving parents when he was a child.

Henry's psychiatrist wants to treat him with a psychological treatment.

To what extent could **one** psychological treatment be effective for Henry's schizophrenia?

You must make reference to the context in your answer.

(20)

One psychological treatment for schizophrenia is cognitive behavioural therapy (CBT), which aims to help the patient identify and challenge the irrational thoughts and beliefs behind their symptoms. Henry would usually see the therapist about once a week in a supportive, non-threatening environment, and the therapist and Henry would work together collaboratively on specific target symptoms.

First, the therapist would try to understand the background to Henry's schizophrenia, discussing events that happened before the illness and any cognitive distortions, in order to normalise his experiences. As Henry feels his parents were not loving when he was a child, the therapist may explore this relationship as a possible trigger or stressor for his schizophrenia.

When working with auditory hallucinations, the therapist would first focus on the physical attributes of the voice, such as its tone and loudness, and ask Henry exactly what the voices are saying when they tell him he is not a good person. Explaining that hallucinations come from his own irrational thought processes, rather than an outside source, can reduce Henry's anxiety and the power the voices have over him.

The therapist would also challenge Henry's delusions using reality testing. They might ask Henry why he needs to save the world, how he would do it and what evidence he has that he is a superhero. Henry may be set homework to record evidence for and



against his delusional belief, with the aim of showing him there is no basis for it, and to record his beliefs and feelings when he hears the voices, so the therapist can understand his symptoms better.

To tackle his negative symptoms, Henry could be asked to change his behaviour and record his experiences, such as going for a coffee with a friend or going to watch his local rugby team play over the next week, and then noting how he felt. This behavioural experiment could reduce his social withdrawal from his family and friends.

There is research evidence that CBT can be effective for people like Henry. Turkington et al. (2002) found that CBT delivered by trained community psychiatric nurses improved overall symptoms, insight and depression in patients with schizophrenia.

Chadwick et al. (2000) found significant reductions in the power and control voices had over 22 patients with schizophrenia using group-based CBT, so if Henry joined a CBT group it could reduce the power of the voices telling him he is not a good person.

Bradshaw (1998) found considerable improvement in functioning and symptoms in a case study of Carol, a woman with schizophrenia, over a three-year treatment and a one-year follow-up, suggesting the benefits of CBT can last.

A strength of CBT is that it aims to address the causes of Henry's symptoms, such as his faulty thinking about the voices, rather than just reducing the symptoms as antipsychotics do. It also gives Henry skills he can keep using after therapy ends, and it avoids the side effects of drugs, such as tardive dyskinesia, so it may be more acceptable to him.

However, CBT requires the patient to be motivated and to engage with the therapy and homework. As Henry has withdrawn from his family and friends, he may lack the motivation to attend weekly sessions, so CBT may not be effective for him. Also, patients with severe positive symptoms may not be able to communicate effectively or accept that their beliefs are irrational, so Henry may need to take antipsychotic



medication first to reduce his symptoms before he can engage with CBT.

Drake and Sederer (1986) found that intense, overly long therapies often led to a worsening of schizophrenia and negative long-term effects, so CBT may not be effective for Henry if it is both intense and long. The therapist would need to keep the sessions supportive and not too demanding.

Finally, if schizophrenia has a biological basis, such as excess dopamine in the mesolimbic pathway, CBT will not address the biological cause of Henry's symptoms, which suggests CBT alone may not be enough. Studies of CBT also find it hard to use a placebo or blind participants, so improvements may partly be due to the attention and support of the therapist.

In conclusion, CBT could be effective to a large extent for Henry, as it directly targets his specific symptoms of hearing voices, his superhero delusion and his social withdrawal, and research such as Turkington et al. (2002) supports its effectiveness.

However, its success depends on Henry's motivation and ability to engage, so it is likely to be most effective if combined with antipsychotic medication to reduce his positive symptoms, with sessions that are not too intense.



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

Handwriting practice area with 20 sets of horizontal dotted lines.



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(Total for Question 6 = 20 marks)

TOTAL FOR SECTION A = 54 MARKS



SECTION B

Answer questions from ONE option in this section.

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

OPTION 1: CRIMINOLOGICAL PSYCHOLOGY

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

If you answer **OPTION 1**, put a cross in the box ☒.

- 7 In your studies of criminological psychology you will have learned about treatments for offenders.

(a) Describe **one** biological treatment for offenders.

(2)

Drugs such as MPA (medroxyprogesterone acetate) are given to offenders to address an imbalance in hormones or neurotransmitters and so reduce criminal behaviour.

MPA is an antiandrogen given to sex offenders to lower their testosterone levels, which reduces their sex drive and their reoffending.

(b) Explain **one** strength of a biological treatment for offenders.

(2)

There is evidence that drug treatment is effective for sex offenders, giving the treatment validity. Turner et al. (2013) found that up to 75% of inmates prescribed testosterone-lowering medication reported a reduced frequency or intensity of sexual thoughts.

(Total for Question 7 = 4 marks)



- 8 Alicia conducted an experiment to investigate perceptions of criminal behaviour. She gave participants from a local office two different scenarios about an office manager.

In the first scenario the participants had to say how likely it was that the office manager committed assault (condition A). In the second scenario the same participants had to say how likely it was that the office manager committed fraud (condition B).

The participants were asked to give a score from 1 to 10, where 1 was highly unlikely and a score of 10 was highly likely.

- (a) Explain **one** weakness of Alicia collecting quantitative data for her experiment.

(2)

Alicia only collects numerical data, a score from 1 to 10 for how likely it was that the office manager committed assault or fraud, so her data lacks detail.

Therefore she does not get a full understanding of why the participants thought the office manager may or may not have committed the assault or fraud.



(b) Alicia's results are shown in **Table 1**. Complete **Table 1** and calculate the Wilcoxon Signed Ranks test for Alicia's experiment.

(4)

Participant	Condition A: Likelihood of committing assault	Condition B: Likelihood of committing fraud	Difference	Rank	Rank if positive	Rank if negative
A	1	5	-4	4		4
B	3	3	0			
C	2	7	-5	5.5		5.5
D	7	8	-1	1		1
E	5	10	-5	5.5		5.5
F	4	2	2	2	2	
G	3	6	-3	3		3
Total:					2	19

Table 1

SPACE FOR CALCULATIONS

Difference = Condition A - Condition B

Participant B has a difference of 0, so it is not ranked: $N = 6$

C and E tie (5) for ranks 5 and 6, so each gets $(5 + 6) \div 2 = 5.5$

Sum of positive ranks = 2

Sum of negative ranks = $4 + 5.5 + 1 + 5.5 + 3 = 19$

Check: $2 + 19 = 21 = 6 \times 7 \div 2$

T = the smaller total = 2

Wilcoxon T value *T = 2*



(c) Explain **one** improvement Alicia could make to her experiment.

(2)

Alicia could use an independent groups design, so participants only read either the assault scenario or the fraud scenario.

This would increase the validity of the likelihood judgements, as participants would not be affected by prior exposure to the other scenario (order effects or guessing the aim).

(Total for Question 8 = 8 marks)



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

BLANK PAGE



- 9 George is a psychologist who works in a local prison. He has been asked to carry out a case formulation on a prisoner who is due for parole. The prisoner has not been engaging in a treatment programme.

George asks the prisoner about his childhood when he was neglected by his parents. He also asks about his current relationships, which are unstable. George finds out that the prisoner has an addiction and was homeless before going to prison.

Discuss how George may conduct a psychological formulation to understand the function of offending behaviour in the prisoner.

You must make reference to the context in your answer.

(8)

A psychological formulation is a hypothesis about what has led to someone's offending behaviour, the function the behaviour serves for them, and why they may continue it.

It brings together information about the offender's past and present relationships and their social and economic circumstances, and it should be a short document that focuses on the key features of the criminal behaviour. Formulations can be used to decide how likely an offender is to reoffend and to suggest reasons why they are not responding to treatment.

George has asked the prisoner about his childhood, when he was neglected by his parents, and about his current relationships, which are unstable. He could use this information to form a hypothesis that early neglect has led to difficulties forming secure relationships, and that offending may serve a function such as gaining a sense of control or belonging.

George has found out that the prisoner has an addiction and was homeless before going to prison. He could hypothesise that the function of the offending was to get money to fund the addiction or to survive while homeless, so these factors maintain the offending behaviour.

George has gathered a lot of information about the prisoner's past and current circumstances, so he will need to condense it into a brief formulation, deciding which information is most important, such as the 5 Ps: presenting problem, predisposing



factors (neglect), precipitating factors (homelessness), perpetuating factors (addiction, unstable relationships) and protective factors.

As the prisoner is due for parole and has not engaged with his treatment programme, George may conclude that he is likely to reoffend if released, as the addiction and lack of housing have not been addressed. The formulation could explain his lack of engagement, for example a mistrust of authority figures because of his neglect, and suggest a more suitable treatment, such as addiction support and help finding housing before release. George should share the formulation with the prisoner and revise it as new information emerges, as it is only a hypothesis.

(Total for Question 9 = 8 marks)



- 10 Mark is 20 years old and is very tall and muscley. He is constantly in trouble with the police.

When Mark was a toddler, he started to talk at a slightly later age than his sister. At school Mark found it difficult to concentrate as he was easily distracted from his work. He was a member of a junior rugby team until he was asked to leave after being too aggressive. As a teenager Mark often got into fights. He left school at the age of 16 with average exam results, but his parents were disappointed as he did not do as well as his sister.

Mark has just been arrested after crashing a stolen car. His mother says his criminal behaviour is due to his genetics whilst his father says it is due to Mark being seen as a naughty child in the past.

Evaluate XYY syndrome as an explanation of Mark's behaviour.

You must make reference to the context in your answer.

(16)

XYY syndrome is a chromosomal abnormality in which a male has an extra Y chromosome (47 chromosomes instead of 46), thought to be due to an error when cells divide around fertilisation. It affects around 1 in 1000 males. Boys with XYY syndrome tend to grow faster than other boys their age and tend to be taller as men, which matches Mark being very tall and muscley.

About 50% of boys with XYY syndrome have some delay in developing their speech. Mark started to talk at a slightly later age than his sister, which is consistent with XYY syndrome.

Boys with XYY have intelligence in the normal range, but their IQ may be 10 to 15 points below that of their siblings. Mark left school with average exam results, so he is within the normal range, but he did not do as well as his sister, which fits this pattern.

Boys with XYY syndrome find it harder to concentrate and are more easily distracted. At school Mark found it difficult to concentrate, as he was easily distracted from his work, which may explain why he did not do as well as his sister. Boys with XYY may also be more impulsive and more physically active than XY boys. Mark's impulsive behaviour could explain why he was asked to leave the junior rugby team for being too



aggressive, why he often got into fights as a teenager and why he crashed a stolen car. His mother's view that his criminal behaviour is due to his genetics supports this explanation.

There is some research support. Money et al. (1969) found that 19 of their XYY participants had behavioural problems at school, including a deficit in attention span, restlessness and disrupting the classroom routine, showing that XYY can affect a child's education and behaviour, as with Mark.

However, Re and Birkhoff (2015) carried out a literature review of articles from the past 50 years and concluded that males with XYY syndrome are not necessarily going to become anti-social or criminal. Most XYY males never offend, so XYY cannot be a sufficient explanation for Mark's crimes. In a meta-analysis, Leggett et al. (2010) found that males with XYY had IQs within the average range but had difficulties with speech and language. This supports the claim about Mark's later speech, but suggests the link with crime may be indirect, for example through poorer school achievement.

XYY focuses on nature and ignores nurture. Other people may treat XYY boys differently because of their extra height, for example expecting more aggression from them, and it could be this, not the extra chromosome, that leads to anti-social behaviour. Labelling theory offers an alternative explanation: if XYY boys are labelled as disruptive because they are easily distracted at school, the label could become a self-fulfilling prophecy. This fits Mark's father's view that his behaviour is due to Mark being seen as a naughty child in the past.

Also, we do not know whether Mark actually has XYY syndrome, as this can only be confirmed by a genetic (karyotype) test, and his behaviour could equally be explained by other factors such as social learning from peers or high extraversion as in Eysenck's personality theory. Early studies such as Jacobs et al. (1965), which found more XYY males in secure hospitals, used small and biased samples, which reduces the validity of



the link between XYY and crime.

On the other hand, the XYY theory has practical application. Knowing that XYY males are more physically active and easily distracted means strategies, such as extra support with concentration and outlets for physical energy, could be put in place at school, which may reduce their tendency to be anti-social. If Mark had received this support he might not have offended.

In conclusion, XYY syndrome may partly explain Mark's behaviour, as his height, delayed speech, poor concentration and impulsivity match its characteristics. However, as most XYY males are not criminals and environmental factors such as labelling also fit Mark's history, it is most likely that a genetic predisposition interacted with how others treated him, so XYY is at best a partial explanation of his offending.



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(Total for Question 10 = 16 marks)

TOTAL FOR SECTION B OPTION 1 = 36 MARKS



OPTION 2: CHILD PSYCHOLOGY

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

If you answer OPTION 2, put a cross in the box ☒.

- 11 In your studies of child psychology you will have learned about therapies for helping children with autism.

(a) Describe **one** therapy used to help children with autism.

(2)

Applied behavioural analysis (ABA) uses operant conditioning, rewarding a child with autism when they show a desired behaviour, such as making eye contact, so the behaviour is repeated.

Each child with autism has specific goals to work towards, and ABA can be used in a variety of situations, such as at home and school, to help achieve those goals.

(b) Explain **one** strength of a therapy for helping children with autism.

(2)

There is evidence that ABA is effective, so the therapy has validity. Yu et al. (2020) found that ABA led to a significant improvement in socialisation, communication and expressive language in children with autism spectrum disorder.

(Total for Question 11 = 4 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



- 12 Alicia conducted an experiment to investigate perceptions about whether day care improved the cognitive development of children. She gave parents from a local nursery two different scenarios about a child.

In the first scenario the participants had to say how likely it was that the cognitive development of a child who did not attend day care would have improved (condition A). In the second scenario the same participants had to say how likely it was that the cognitive development of a child who did attend day care would have improved (condition B).

The participants were asked to give a score from 1 to 10, where 1 was highly unlikely and a score of 10 was highly likely.

- (a) Explain **one** weakness of Alicia collecting quantitative data for her experiment.

(2)

Alicia only collects numerical data, a score from 1 to 10 for how likely it was that

the child's cognitive development would have improved, so her data lacks detail.

Therefore she does not get a full understanding of why the parents thought the child's

cognitive development may or may not have improved.



- (b) Alicia's results are shown in **Table 2**. Complete **Table 2** and calculate the Wilcoxon Signed Ranks test for Alicia's experiment.

(4)

Participant	Condition A: Likelihood of child who did not go to day care improving	Condition B: Likelihood of child who did go to day care improving	Difference	Rank	Rank if positive	Rank if negative
A	1	5	-4	4		4
B	3	3	0			
C	2	7	-5	5.5		5.5
D	7	8	-1	1		1
E	5	10	-5	5.5		5.5
F	4	2	2	2	2	
G	3	6	-3	3		3
Total:					2	19

Table 2

SPACE FOR CALCULATIONS

Difference = Condition A - Condition B

Participant B has a difference of 0, so it is not ranked: $N = 6$

C and E tie (5) for ranks 5 and 6, so each gets $(5 + 6) \div 2 = 5.5$

Sum of positive ranks = 2

Sum of negative ranks = $4 + 5.5 + 1 + 5.5 + 3 = 19$

Check: $2 + 19 = 21 = 6 \times 7 \div 2$

T = the smaller total = 2

Wilcoxon T value *T = 2*



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(c) Explain **one** improvement Alicia could make to her experiment.

(2)

Alicia could use an independent groups design, so the parents only read either the scenario of the child who did or the child who did not attend day care.

This would increase the validity of the likelihood judgements, as parents would not be affected by prior exposure to the other scenario (order effects or guessing the aim).

(Total for Question 12 = 8 marks)



- 13** George is a psychologist who works at a children's clinic. He has been asked to work with a child who they are worried may develop the effects of deprivation. This is the second occasion that the child's mother has had to stay in hospital for a long period of time. The child will be placed in foster care with a family.

During the first separation the child was placed in a children's home and had to fit in with the routines that were already in place there. The parents of the child are concerned as they noticed a change in their child's behaviour after the first separation.

Discuss how George may reduce the negative effects of deprivation.

You must make reference to the context in your answer.

(8)

Deprivation is when a child has formed an attachment but is then separated from their attachment figure, which can lead to protest, despair and detachment, as described by Robertson and Robertson. The child's parents have already noticed a change in their child's behaviour after the first separation, so George needs to reduce these effects this time.

Children should be placed in a home where an adult can provide a substitute mother figure who gives the child focused attention. As the child is being placed with a foster family this time, rather than a children's home, George could make sure one foster carer acts as a substitute mother figure, so the child may form an attachment to them and not become as upset. Robertson and Robertson (1971) fostered children such as Jane and Lucy while their mothers were in hospital and found they coped well with the separation, whereas John, placed in a residential nursery, became distressed and withdrawn.

Parents should try to maintain regular contact with their children if they have to be separated. If possible, George should arrange for the child to visit its mother regularly while she is in hospital, so the effects of the deprivation are not as severe.

If it is not possible to maintain contact, reminders of the absent parent may help reduce the effects of deprivation. If the child cannot visit the hospital, George could ensure photographs of the mother are in the foster home and that the foster carers



talk about her, so the child keeps a mental image of the mother. The child could also bring familiar toys from home.

Routines can help a child adjust to a long period of time away from home. During the first separation the child had to fit in with the routines of the children's home, which may explain the change in behaviour. This time George should ask the foster family to keep the child's home routines, such as bedtime and mealtime routines, rather than making the child fit into existing ones.

George should also prepare the child before the separation, for example by visiting the foster family beforehand, which should further reduce the negative effects of deprivation.

(Total for Question 13 = 8 marks)



14 Mark works at a nursery. There are children from a variety of different cultures at the nursery.

He has noticed that children from different cultures behave differently when they are at nursery. Some children get upset when their parent leaves and take time to settle down and start joining in the activities. Other children happily start playing and do not seem to be upset when their parent leaves. A small minority of the children become so upset that the workers at the nursery find it very hard to comfort them.

Mark has been asked by his manager to investigate why children from different cultures behave differently when at the nursery. He will present his findings to the other workers.

Evaluate cross-cultural research into attachment types as an explanation of the children's behaviour at the nursery.

You must make reference to the context in your answer.

(16)

Cross-cultural research into attachment types uses Ainsworth's Strange Situation, a controlled observation with eight episodes, each about three minutes long, involving the mother, the child and a stranger. The child's reactions when with the mother, when left alone, when with the stranger and on reunion with the mother are recorded to determine attachment type. Ainsworth (1978) found that the majority of children were securely attached (type B, about 66%), with 22% anxious avoidant (type A) and 12% anxious resistant (type C).

The children at Mark's nursery who get upset when their parent leaves but then settle down and join in the activities are showing a secure attachment (type B), which is the most common type in American culture as studied by Ainsworth.

Van IJzendoorn and Kroonenberg (1988) carried out a meta-analysis of 32 studies from eight countries and found that type B was the most common attachment type in all cultures, apart from one study from Germany where the most common was anxious avoidant. The children at the nursery who happily start playing and do not seem upset when their parent leaves show characteristics of an anxious avoidant attachment, so they may be from a culture such as Germany, where independence is encouraged. However, as type B was the most common type across cultures, culture may not



actually affect how upset most children get when their parent leaves.

Miyake et al. (1985) found more type C (anxious resistant) infants in Japan, where children are rarely separated from their mothers. The small minority of children at the nursery who become so upset that workers find it very hard to comfort them may be anxious resistant and could be from a culture such as Japan. Cassibba et al. (2013) found that 53% of Italian infants were securely attached, compared with 65% of American infants in Ainsworth's studies.

A strength of cross-cultural research using the Strange Situation is that it is reliable, as it uses a series of standardised episodes, each lasting three minutes, so it can be replicated across cultures and the results compared. Van IJzendoorn and Kroonenberg (1988) had a large sample of nearly 2000 infants from a variety of different cultures, so their results can be said to be representative and could be generalised to the children at Mark's nursery. Cassibba et al. (2013) used unpublished as well as published studies to avoid publication bias, where negative results are not published, so their findings may be seen as more valid when explaining the children's behaviour.

However, the Strange Situation was developed in the USA and may be ethnocentric, as it assumes children's reactions mean the same in all cultures. Japanese children may have seemed anxious resistant because being left alone was so unusual for them, not because they were insecure. Also, the results from Miyake et al. (1985) may be biased, as they used mothers who did not go out to work, so the same results may not be found with Japanese mothers who do work and may not explain the behaviour of children at the nursery whose parents work.

Research using the Strange Situation could be seen as unethical, as the child is left alone and is known to become upset, so they are not protected from harm. Ainsworth's research also only looked at interactions between the child and the mother, and ignored the effect of the father or other caregivers on the child's attachment and

behaviour. There are also large variations within cultures, for example between urban and rural areas, so Mark should be careful not to assume a child's attachment type from their culture alone.

In conclusion, cross-cultural research suggests that differences in child-rearing practices could explain why some children at the nursery settle quickly while others are very distressed. However, as secure attachment is the most common type in every culture and the Strange Situation may be culturally biased, Mark should present culture as only one factor, alongside individual differences such as temperament and the child's previous experience of separation.



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(Total for Question 14 = 16 marks)

TOTAL FOR SECTION B OPTION 2 = 36 MARKS



OPTION 3: HEALTH PSYCHOLOGY

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

If you answer OPTION 3, put a cross in the box ☒.

15 In your studies of health psychology you will have learned about treatments for alcohol addiction.

(a) Describe **one** treatment for alcohol addiction.

(2)

In aversion therapy alcohol is paired with Antabuse (disulfiram), which stops the oxidising of acetaldehyde, so the person feels sick after drinking alcohol.

Through classical conditioning, the person then associates alcohol with the reflex response of being sick, so no longer wants to drink alcohol.

(b) Explain **one** strength of a treatment for alcohol addiction.

(2)

There is evidence that aversion therapy is effective for treating alcohol addiction, so the therapy has validity. Howard (2001) found that patients who had pharmacological aversion therapy were more confident that they would not drink in high-risk situations after treatment.

(Total for Question 15 = 4 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



- 16 Alicia conducted an experiment to investigate perceptions about whether a drug addict is more likely to commit a crime than a non-drug addict. She gave participants from a local town two different scenarios about a crime.

In the first scenario the participants had to say how likely it was that the person who was not a drug addict committed the crime (condition A). In the second scenario the same participants had to say how likely it was that the person who was a drug addict committed the crime (condition B).

The participants were asked to give a score from 1 to 10, where 1 was highly unlikely and a score of 10 was highly likely.

- (a) Explain **one** weakness of Alicia collecting quantitative data.

(2)

Alicia only collects numerical data, a score from 1 to 10 for how likely it was that the drug addict or non-addict committed the crime, so her data lacks detail.

Therefore she does not get a full understanding of why the participants thought the drug addict or non-addict may or may not have committed the crime.



(b) Alicia's results are shown in **Table 3**. Complete **Table 3** and calculate the Wilcoxon Signed Ranks test for Alicia's experiment.

(4)

Participant	Condition A: Likelihood of non-addict committing the crime	Condition B: Likelihood of drug addict committing the crime	Difference	Rank	Rank if positive	Rank if negative
A	1	5	-4	4		4
B	3	3	0			
C	2	7	-5	5.5		5.5
D	7	8	-1	1		1
E	5	10	-5	5.5		5.5
F	4	2	2	2	2	
G	3	6	-3	3		3
Total:					2	19

Table 3

SPACE FOR CALCULATIONS

Difference = Condition A - Condition B

Participant B has a difference of 0, so it is not ranked: $N = 6$

C and E tie (5) for ranks 5 and 6, so each gets $(5 + 6) \div 2 = 5.5$

Sum of positive ranks = 2

Sum of negative ranks = $4 + 5.5 + 1 + 5.5 + 3 = 19$

Check: $2 + 19 = 21 = 6 \times 7 \div 2$

T = the smaller total = 2

Wilcoxon T value *T = 2*



(c) Explain **one** improvement Alicia could make to her experiment.

(2)

Alicia could use an independent groups design, so participants only read either the crime scenario with the drug addict or the scenario with the non-addict.

This would increase the validity of the likelihood judgements, as participants would not be affected by prior exposure to the other scenario (order effects or guessing the aim).

(Total for Question 16 = 8 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA



- 17 George is a health psychologist. He has been asked to create an anti-drugs campaign. The campaign is to be aimed at teenagers as there has been an increase in illegal drug use in the area.

George plans to use a social media celebrity, who is a recovered addict, as part of his campaign. He intends to ask the celebrity to talk about the highs and the lows of being addicted. George also plans to show graphic images of what drugs can do to the body and use statistics about the long-term effects of drugs.

Discuss the psychological strategies behind George's anti-drugs campaign.

You must make reference to the context in your answer.

(8)

Social learning theory suggests that the use of role models in campaigns means the target audience will identify with the model and so observe and imitate their behaviour. George's use of a social media celebrity means the celebrity should be a role model for teenagers, as they are likely to follow them and identify with them, so they are more likely to imitate not taking drugs. Seeing that the celebrity has recovered is vicarious reinforcement for staying drug free.

The Hovland-Yale model says that the person delivering the message should be a credible source, seen as an expert and trustworthy, in order to change people's attitudes. As the celebrity is a recovered addict, they should be seen as a credible source, as they have personally experienced the highs and lows of drug taking.

The Hovland-Yale model also suggests that campaigns giving both sides of the argument are more likely to be effective, especially with an intelligent or informed audience. George's campaign should be more effective because the celebrity will talk about the highs of drug taking as well as the lows, so teenagers are less likely to feel they are being lectured and more likely to accept the message. The use of statistics about the long-term effects of drugs also appeals to the audience through logical argument.

Fear arousal can be used in a campaign to change behaviour, as people feel they may be negatively affected by the drug. George's graphic images of what drugs can do to



the body aim to arouse fear. However, Janis and Feshbach (1953) found that a low level of fear was more effective than high fear in changing behaviour, as high fear tactics can lead people to ignore or avoid the message. George should therefore ensure his graphic images are not too fear arousing, and combine them with clear advice on how to avoid drugs, so teenagers feel able to act on the message.

Finally, as the campaign is aimed at teenagers, using social media is suitable, as this is where they are likely to see and share the message, increasing its reach in the area.

(Total for Question 17 = 8 marks)



18 Mark is training to be a health psychologist. He is currently studying causes of heroin addiction using addicts he treats as his participants.

In one case Mark noted that the person took heroin in specific places, such as in the kitchen but not in the bedroom. He noted that overdoses are caused when people take heroin in places they do not normally take it.

Mark asked another addict the reasons why they took heroin. On some occasions they were positive, such as getting high, and sometimes negative to take away pain.

He also observed that a lot of heroin addicts had friends who are addicted to heroin, and some of the heroin addicts said that they started taking heroin because someone they knew also took it.

Evaluate **one** learning explanation for heroin addiction in relation to Mark's case studies.

You must make reference to the context in your answer.

(16)

One learning explanation for heroin addiction is operant conditioning, which states that when a behaviour such as taking heroin is reinforced, it is more likely to be repeated.

Positive reinforcement is when taking heroin gives the addict something they desire, such as the pleasurable high caused by the release of dopamine in the brain's reward pathway. This may explain why addicts take heroin again after the first time, as they associate taking heroin with a desirable outcome. Mark's addict who said they took heroin to get high has been positively reinforced for taking heroin.

Negative reinforcement is when something unpleasant is removed or avoided after taking the heroin. This explains why addicts continue taking heroin once they are dependent, as taking it removes withdrawal symptoms such as pain, anxiety and sickness. Mark's addict who said that sometimes they took heroin to take away pain is being negatively reinforced, which may explain why they continue to take it.

A primary reinforcer satisfies a basic need. For heroin addicts, taking heroin may allow them to fit in with their friends, and the social approval that follows acts as a reinforcer. Many of Mark's addicts had friends who were addicted to heroin, so they may be reinforced by belonging to the group, which satisfies the desire to belong.

There is research support. Olds and Milner (1954) found that rats would repeatedly



press a lever to receive the positive reinforcement of electrical stimulation to the reward areas of the brain, so heroin, which also stimulates the reward pathway, may be repeated in the same way. However, this was an animal study, and human addiction involves cognitive and social factors, so it may not generalise to Mark's addicts.

A strength of operant conditioning is that it takes into account the biological processes of dependency and withdrawal symptoms, so it considers nature as well as nurture. It also has practical applications, as its principles can be used in therapy: if not taking heroin is rewarded in a way that is meaningful for the addict, for example with vouchers in contingency management, it can help them recover. Mark could use this with the addicts he treats.

However, operant conditioning cannot explain why people first try heroin, as there is no reinforcement before the first use. Social learning theory says people first take heroin by imitating role models. Some of Mark's addicts said they started taking heroin because someone they knew took it, which suggests they observed and imitated a role model rather than being conditioned. Mundt et al. (2012) found that adolescents' alcohol use was influenced by the drinking of their friends, which supports social learning rather than operant conditioning for starting drug use.

Operant conditioning also does not explain why addicts continue to take heroin after a bad experience such as an overdose, as this should act as a punishment and reduce the behaviour. Nor can it explain Mark's first case, where the person took heroin in specific places such as the kitchen and overdoses happened in unusual places. This is better explained by classical conditioning: Siegel et al. (1982) found that rats given heroin in a new environment were more likely to overdose (64%) than those given it in their usual environment (32%), as conditioned tolerance to the usual environmental cues had not been triggered.

In conclusion, operant conditioning explains well why Mark's addicts continue taking

heroin, through positive reinforcement (getting high) and negative reinforcement (removing pain). However, it cannot explain why they started taking heroin or the place-specific overdoses, so a full explanation of heroin addiction needs to combine operant conditioning with social learning theory and classical conditioning, as well as biological factors.



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(Total for Question 18 = 16 marks)

TOTAL FOR SECTION B OPTION 3 = 36 MARKS
TOTAL FOR PAPER = 90 MARKS



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

BLANK PAGE



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

BLANK PAGE



DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

BLANK PAGE

