

Please check the examination details below before entering your candidate information

Candidate surname <i>StemUp Model Solution</i>		Other names											
Pearson Edexcel Level 3 GCE		Centre Number <table border="1"><tr><td></td><td></td><td></td><td></td><td></td></tr></table>						Candidate Number <table border="1"><tr><td></td><td></td><td></td><td></td><td></td></tr></table>					
Friday 7 June 2019													
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.
- 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.



Chi-squared distribution formula

$$X^2 = \sum \frac{(O-E)^2}{E}$$

$$df = (r - 1)(c - 1)$$

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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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



P 5 7 0 6 4 A 0 5 5 6

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.

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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

<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.



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SECTION A: CLINICAL PSYCHOLOGY

Answer ALL questions.

1 In your studies of clinical psychology you will have learned about one of the following disorders:

- Anorexia nervosa
- Obsessive-compulsive disorder (OCD)
- Unipolar depression.

(a) State **three** symptoms of the disorder you have learned about.

(3)

Disorder Unipolar depression

1 Low mood or loss of interest and pleasure in usual activities (anhedonia) for at least two weeks.

2 Changes in sleep patterns, such as insomnia, finding it hard to get to sleep, or sleeping for much longer than usual.

3 Feelings of hopelessness and worthlessness, believing that nothing will get better in the future.

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- (b) Explain **one** strength and **one** weakness of one biological explanation of your chosen disorder.

(4)

Strength

One strength is that anti-depressants such as SSRIs, which increase the levels of monoamines like serotonin at the synapse, are effective in reducing the symptoms of unipolar depression for many patients. This suggests there must be an imbalance of monoamines, otherwise correcting that imbalance would have no effect, which gives the explanation validity.

Weakness

One weakness is that most research in humans is correlational, finding an association between low monoamines and depression. It could therefore be that unipolar depression causes the reduction in monoamines rather than low monoamines causing the depression, so cause and effect cannot be established.

(Total for Question 1 = 7 marks)



P 5 7 0 6 4 A 0 9 5 6

- 2 Victoria is upset as she finds it hard to leave the house as she is scared of birds. Whenever she leaves the house she is highly anxious in case a bird is nearby, and she has previously run across the road without looking for cars to avoid a bird.

Victoria is unable to work because of her fear of birds, causing her to feel upset as she cannot buy her children toys. This has led to her having suicidal thoughts and feeling that her children would be better off without her.

- (a) Describe how distress **and** danger could be used to diagnose Victoria as having a mental health disorder.

(3)

Victoria is distressed because she is upset that she cannot leave the house and that she cannot work, so cannot afford to buy her children toys. Her suicidal thoughts and feeling that her children would be better off without her show severe personal distress, which suggests her behaviour is abnormal and needs treatment.

Her fear of birds also puts her in danger, as she has run across the road without looking for cars to avoid a bird, so she could be involved in a road accident. Her suicidal thoughts also suggest she could be a danger to herself, so the danger criterion would support a diagnosis.

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(b) Explain **one** weakness of using danger to diagnose mental health disorders.

(2)

One weakness is that danger is subjective, as some behaviours such as car racing or extreme sports are dangerous but are not a symptom of a mental health disorder.

Whether a behaviour is classed as dangerous depends on the psychiatrist's perception of why the person is doing it, which reduces the reliability of diagnosis.

(Total for Question 2 = 5 marks)



- 3 Nancy carried out an experiment to see the effects of sensory deprivation on the number of hallucinations participants reported.

Participants were split into two groups:

- Condition A: Participants had no sensory information for 10 minutes
- Condition B: Participants had no sensory information for 60 minutes.

Nancy totalled the number of hallucinations each participant reported. She then carried out a Mann-Whitney U test on her data.

(a) State **two** reasons why Nancy selected a Mann-Whitney U test to use on her data.

(2)

- 1 *Nancy was looking for a difference in the number of hallucinations between those who had 10 minutes and those who had 60 minutes of sensory deprivation.*
- 2 *There were two separate groups of participants (Conditions A and B), so it was an independent groups design.*

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(b) Nancy's results are shown in **Table 1**.

Complete **Table 1** and calculate the Mann-Whitney U for the data in **Table 1**. You must give your answer to **one** decimal place.

(4)

Condition A after 10 minutes of sensory deprivation		Condition B after 60 minutes of sensory deprivation	
Number of reported hallucinations	Rank	Number of reported hallucinations	Rank
0	1	3	6.5
2	4	6	9
1	2	9	10
3	6.5	4	8
2	4	2	4
Total	17.5	Total	37.5

Table 1

SPACE FOR CALCULATIONS

$$R_a = 1 + 4 + 2 + 6.5 + 4 = 17.5 \quad R_b = 6.5 + 9 + 10 + 8 + 4 = 37.5$$

$$U_a = n_a n_b + n_a(n_a + 1)/2 - R_a$$

$$U_a = (5 \times 5) + (5 \times 6)/2 - 17.5 = 25 + 15 - 17.5 = 22.5$$

$$U_b = (5 \times 5) + (5 \times 6)/2 - 37.5 = 25 + 15 - 37.5 = 2.5$$

U is the smaller of the two values, so $U = 2.5$

$$U_a = 22.5$$

$$U_b = 2.5$$

$$U = 2.5$$

(Total for Question 3 = 6 marks)



P 5 7 0 6 4 A 0 1 3 5 6

- 4 George is a clinical psychologist who works in a psychiatric hospital. He had a patient referred to him six months ago and read the detailed notes from the doctor who made the referral.

George has since spoken to the patient every day about their thoughts and behaviours. He also asked the patient to carry out some problem-solving tasks to see how the disorder may have been affecting their cognitive abilities.

George has decided to carry out a case study on the patient to publish in a medical journal.

Discuss how George could carry out a case study on his patient. You must make reference to the context in your answer.

(8)

A case study is an in-depth study of one individual or a small group, usually chosen because of their unique or unusual circumstances. George would focus his research only on his patient and not include other people, as the case is unusual enough to be published in a medical journal.

Case studies use a variety of research methods to gather a lot of detailed, rich data. George could use unstructured or semi-structured interviews in his daily conversations to gather qualitative data about the patient's thought processes and behaviours. He could also use the problem-solving tasks as a type of experiment or cognitive testing, comparing the patient's performance on different tasks to measure how the disorder affects their cognitive abilities, giving quantitative data.

Case studies can use both primary and secondary data. The detailed notes from the referring doctor are secondary data, whereas George's interviews and observations are primary data. George can compare his observations of the patient's behaviour with the doctor's notes to build up a picture of the patient over time, as the case study is longitudinal and has lasted six months so far.

Case studies also use triangulation, comparing the results from the different methods to check them for consistency. George could compare what the patient says about their thought processes in the interviews with their actual performance on the problem-solving tasks to see if they support each other, which would increase the validity of his

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conclusions.

George would also need to keep the patient's identity confidential, for example using initials only in the journal, and gain informed consent from the patient (or a responsible other if they lack capacity), as they are a vulnerable person in a psychiatric hospital.



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(Total for Question 4 = 8 marks)

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5 Assess how far culture can lead to individual differences in mental health disorders.

(8)

Different cultures have different attitudes to mental health disorders, and this can affect how disorders are experienced and diagnosed. Some cultures have disorders that are specific to that culture, known as culture-bound syndromes, such as amok in Malaysia, which suggests culture can lead to individual differences in the disorders people suffer from. Western cultures tend to see the mind and body as separate, so distress may be expressed psychologically, whereas in other cultures it may be expressed through physical symptoms. There may also be problems of translation if the patient and psychiatrist speak different languages, which can lead to misdiagnosis.

Luhrmann et al. (2015) found that hearing voices was seen as a negative, violent experience by people with schizophrenia in America but as a more positive one in India and Ghana, where voices were often heard as family members. This supports the idea that culture changes how people experience and react to symptoms, leading to individual differences.

Andrade et al. (2012) found that high social deprivation was associated with substance use disorders in São Paulo, showing that economic and social background, as well as culture, can affect individual mental health disorders.

However, Lin (1996) found that when looking at the symptoms of schizophrenia, there were more similarities across cultures than differences, suggesting culture may not lead to large differences in the disorder itself. Also, psychiatrists may over-compensate for cultural differences and fail to diagnose a disorder that is present, so culture may cause differences in diagnosis rather than in the disorders themselves.

Overall, culture does lead to some individual differences, especially in how symptoms are expressed and interpreted, but core symptoms of disorders such as schizophrenia appear similar across cultures, so culture only partly explains individual differences.



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(Total for Question 5 = 8 marks)



- 6 Michael has just been diagnosed with schizophrenia. His symptoms include hearing voices telling him what to do, and not being able to put his thoughts into a logical sense. Michael also has a lack of energy and has withdrawn from his friends.

Michael's doctor says that his schizophrenia is due to his neurotransmitters. His mother thinks it is due to genetics as she also has schizophrenia. His father, however, thinks it is due to Michael taking illegal drugs such as phencyclidine (PCP, 'angel dust').

To what extent can Michael's schizophrenia be explained by the function of his neurotransmitters? You must make reference to the context in your answer.

(20)

The dopamine hypothesis states that schizophrenia is caused by too much dopamine activity in the brain. People with schizophrenia are thought to have more dopamine receptor sites, especially D2 receptors, which are more likely to pick up dopamine than other receptors. This means more dopamine is received and it is more likely to have an effect on the post-synaptic neuron. The revised dopamine hypothesis suggests that too much dopamine in the mesolimbic pathway causes the positive symptoms such as hallucinations and delusions, whereas too little dopamine in the mesocortical pathway causes the negative symptoms such as poverty of speech and avolition.

This can be applied to Michael. His auditory hallucinations, hearing voices telling him what to do, could be explained by excess dopamine in his mesolimbic system. His lack of energy and withdrawal from his friends are negative symptoms, which could be explained by too little dopamine in his mesocortical system. His disorganised thinking, not being able to put his thoughts into a logical sense, could also be linked to dopamine imbalances affecting the prefrontal cortex.

Other neurotransmitters are also involved. The glutamate hypothesis suggests that a decrease in glutamate activity, for example due to underactive NMDA receptors, causes symptoms such as psychosis. Glutamate is thought to control the amount of dopamine released and normally seems to lower dopamine levels, so a reduction in glutamate can lead to an increase in dopamine release. This is relevant to Michael's father's view, as PCP is an NMDA (glutamate) antagonist, so Michael's use of PCP may have limited the



P 5 7 0 6 4 A 0 1 9 5 6

effect of his glutamate, raising his dopamine and causing his schizophrenia. An increase in serotonin activity has also been linked to both positive and negative symptoms, so too much serotonin could explain why Michael has both types of symptom.

There is evidence to support the neurotransmitter explanation. Anti-psychotic drugs such as chlorpromazine work by blocking dopamine (D2) receptors and are effective in reducing positive symptoms, suggesting excess dopamine does play a role. Lindstroem et al. (1999) used PET scans and found that people with schizophrenia took up radioactively labelled L-DOPA faster than a control group, suggesting they were producing dopamine more quickly, which supports the idea that excess dopamine causes schizophrenia. Carlsson et al. (2000) concluded that dopamine, glutamate and serotonin are all implicated, which suggests neurotransmitter function can explain Michael's range of symptoms.

However, anti-psychotics block dopamine receptors within hours, yet it takes days or weeks for symptoms to reduce, so other factors must be involved. Depatie and Lal (2001) found that giving people apomorphine, a dopamine agonist, did not produce the symptoms of schizophrenia, as would be expected if excess dopamine caused it. Much of the evidence is also correlational, so it could be that having schizophrenia causes the changes in neurotransmitters rather than the other way round.

The neurotransmitter explanation is also reductionist, as it ignores other causes. Michael's mother also has schizophrenia, and twin studies such as Gottesman and Shields (1966) show higher concordance in MZ than DZ twins, so genes may cause the changes in dopamine and glutamate in the first place. This means neurotransmitters are a mechanism rather than a full explanation. Environmental factors also matter: researchers at Liverpool University (2012) found that childhood trauma made people around three times more likely to develop schizophrenia, and cognitive explanations focus on faulty processing rather than brain chemistry.

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In conclusion, Michael's schizophrenia can be explained to a large extent by the function of his neurotransmitters, as dopamine, glutamate and serotonin can account for both his positive and negative symptoms and for the effect of PCP. However, it is best seen as an interaction, where a genetic vulnerability inherited from his mother and drug use triggering changes in glutamate and dopamine together lead to his schizophrenia, in line with the diathesis-stress model.



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TOTAL FOR SECTION A = 54 MARKS



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SECTION B

Answer questions from ONE option in this section.

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 question with a cross ☐.

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

OPTION 1: CRIMINOLOGICAL PSYCHOLOGY

Answer ALL questions.

- 7 Rose witnessed a robbery at a bank. Whilst she was waiting to give her statement to the police she was in a room with other witnesses to the robbery. Rose gave an interview to the police at the bank.

When she went home a report of the robbery was on the local news where they mentioned that a weapon had been used. One week later the police asked Rose to go to the police station to give a second interview as they wanted to clarify a few points about the robbery.

- (a) Describe how post-event information may have affected Rose's testimony of the robbery.

(3)

Post-event information is misleading information received after an event that becomes incorporated into the original memory, so the memory is reconstructed.

While waiting in the room, Rose may have discussed the robbery with the other witnesses, who could have misled her, for example she may have originally thought the robber had brown hair but later remembered it as blonde after talking to them.

The local news mentioned that a weapon had been used. Even if this was incorrect, it may have become part of Rose's memory, so in her second interview a week later she may report seeing a weapon that she did not originally mention.



P 5 7 0 6 4 A 0 2 5 5 6

- (b) The police carried out a cognitive interview with Rose when she was at the police station.

Describe how the police may have carried out a cognitive interview with Rose.

(4)

The police would ask Rose to report everything she remembers about the robbery, however trivial, as a small detail may trigger other memories.

They would ask her to mentally reinstate the context, thinking about the environment in the bank at the time, such as the sounds, any background music, and how she felt.

Rose could be asked to recall the robbery from a different perspective, such as from the point of view of the cashier behind the desk, which may trigger more memories.

She could also be asked to recall the events in a different order, such as backwards from the end of the robbery. The police would not ask Rose specific questions until later in the interview, to stop her reconstructing the event based on the questions asked.

(Total for Question 7 = 7 marks)



- 8 Marya carried out a field experiment to investigate whether cognitive-behavioural treatment was effective for treating offenders in prison and reducing their reoffending rates. She compared one group of offenders who had cognitive-behavioural treatment (Condition A) with a group of offenders who received no treatment (Condition B).

Marya collected the reoffending rates for the participants in each condition six months after the offenders were released from prison.

Marya's results are shown in **Table 2**.

Condition A Reoffending rates for those who received cognitive-behavioural treatment	Condition B Reoffending rates for those who received no treatment
0	3
1	2
3	4
2	5
0	3
0	2
2	1
1	5
1	6
0	4
Range = 3	Range = 5

Table 2

- (a) Calculate the range of Condition B and complete **Table 2** with your answer.

(1)

SPACE FOR CALCULATIONS

$$\text{Range} = \text{highest} - \text{lowest} = 6 - 1 = 5$$



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(b) Marya used the mean as a measure of central tendency.

Explain why Marya used the mean rather than the mode in her field experiment.

(2)

The mean is better as it uses all the reoffending rates for all ten offenders in each condition, so it is a more meaningful and sensitive representation than the mode, which would only use the most frequent reoffending rate (Condition B has no single mode, as 2, 3, 4 and 5 all appear twice).

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

(2)

Marya could collect the reoffending rates after a few years rather than after six months. This would allow her to see whether the cognitive-behavioural treatment had a long-term effect on reducing reoffending.

(Total for Question 8 = 5 marks)



9 Evaluate the classic study by Loftus and Palmer (1974).

(8)

Loftus and Palmer (1974) aimed to see whether the phrasing of a leading question about speed would affect participants' estimates of the speed of cars. In experiment one, 45 students all watched the same seven films of traffic accidents and then answered questions, including the critical question 'About how fast were the cars going when they smashed/collided/bumped/hit/contacted each other?' Only the verb changed. Those asked 'smashed' estimated a mean speed of 40.8 mph, compared with 31.8 mph for 'contacted', a difference of 8.7 mph. In experiment two, 150 students watched a film of a multiple car crash; a week later, 16 of the 50 in the 'smashed' condition wrongly reported seeing broken glass, compared with 7 for 'hit' and 6 in the control group, suggesting the question altered the memory itself.

One strength is that all participants watched the same videos, so the results were not affected by seeing different accidents, which increases the reliability of the study. The study also collected quantitative data in the form of estimated speeds in mph, which increases objectivity as no interpretation of what participants said was needed.

However, the study may lack validity, as watching a traffic accident on a video does not have the same emotional effect as seeing a real accident, so real eyewitnesses may remember differently. All the participants were students, so the results may not generalise to older people who have been driving for longer and may be better at judging speed.

Overall, the study is reliable and objective and shows leading questions can distort memory, but its low ecological validity means its findings should be applied to real eyewitness testimony with caution.



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- 10 Donald has recently been caught shoplifting at a local shop. He was taken to the local police station where he was given a warning. His parents had to go to the police station to pick him up. They are now worried that he may be labelled as a criminal and this may affect his future behaviour and cause him to commit more crimes.

To what extent can labelling theory explain whether Donald would commit more crimes in the future?

You must make reference to the context in your answer.

(16)

According to labelling theory, a behaviour is only deviant if society says it is deviant (Becker, 1963). Labelling a behaviour as deviant allows those in authority, such as the police, to maintain their power structure. Once a person has been labelled as deviant they become stigmatised, and the label affects how others treat them, as they are seen as untrustworthy. Those with negative labels develop a lower self-image and may come to reject themselves. Lemert called the original act primary deviance; once the person accepts the label as part of their self-concept, they act in ways that fulfil it and commit further crimes, known as secondary deviance, in a self-fulfilling prophecy. Donald's shoplifting has been labelled as deviant, as he was taken to the police station and given a warning. Local shopkeepers may hear about this and treat him differently, for example closely watching him whenever he comes into their shop. His parents' worry may also show in how they treat him. Donald may then develop a negative self-concept, seeing himself as untrustworthy and as a shoplifter, and due to this self-image he may go on to commit more shoplifting and possibly more serious crimes such as burglary, as his parents fear.

There is evidence to support labelling theory. Chambliss (1973) found that the Roughnecks, a group of working-class boys, were more likely to be labelled deviant by the police and have legal action taken against them, whilst the middle-class Saints, who committed as many offences, were not. This supports the idea that labelling is part of the power structure. Lieberman et al. (2014) found that juveniles who had previously been arrested were more likely to commit later crimes than those who had not, which



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could be due to the label and how others treated them, suggesting Donald's warning could increase his risk of reoffending. Labelling theory can also explain cultural differences, for example in Amsterdam, where cannabis use is not labelled as deviant, there is relatively limited problematic drug use.

However, labelling theory ignores the reason for the original deviant act, so other explanations are needed, such as social learning theory, where Donald may have learned to shoplift by observing peers being rewarded. Lemert (1962) found that cheque forgers had been forging cheques long before they were caught, so their criminal behaviour began before they were labelled and was not caused by a change in self-image.

Labelling theory also focuses on nurture and ignores nature, such as genes or hormones, so it cannot explain all criminal behaviour. It is also deterministic, as not everyone who is labelled reoffends; Donald may be deterred by the warning and his parents' support.

In conclusion, labelling theory can partly explain whether Donald would commit more crimes, as the warning and how others react may create a negative self-concept and a self-fulfilling prophecy. However, it cannot explain why he shoplifted in the first place, and whether he reoffends will also depend on other factors such as his peers, his family's support and individual differences.

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TOTAL FOR SECTION B OPTION 1 = 36 MARKS

OPTION 2: CHILD PSYCHOLOGY

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

Answer ALL questions.

- 11 Donna is six months old. Her mother, Rose, decides to place Donna in day care. She places Donna in a nursery where there are other children of the same age and a variety of activities available for Donna to take part in. The manager of the nursery has a professional qualification in childcare.

(a) Using research, describe the advantages for Donna of attending day care.

(3)

Donna started day care at six months, which is under one year old, so according to Andersson (1992), who found that Swedish children who started day care before the age of one were rated as more socially and intellectually advanced at 8 and 13, Donna should become more socially advanced.

Being in a nursery with other children of the same age will give Donna social interaction, so she may become more outgoing and have more friends.

Sylva et al. (2004) found that children who started nursery before three years old benefited intellectually, so Donna should benefit too, especially as there are a variety of activities available to her.



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(b) Describe what Rose could have considered when selecting a nursery that provides good quality day care.

(4)

Rose could ask about the staff turnover and make sure it is low, as this will allow Donna to form stable attachments with her carers.

She could ensure there is a low child to staff ratio, with a maximum of one member of staff to three children of Donna's age, so that Donna gets the attention and sensitive responsiveness she needs.

As well as checking the manager's qualification, Rose could make sure the other staff are qualified, at least to Level 2. This ensures the staff have the knowledge to look after Donna and provide activities that aid her intellectual and social development.

Rose could also check that Donna would have a key worker, and look at the nursery's Ofsted report.

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- 12** Marya carried out a questionnaire to investigate whether a new therapy was effective for children with autism. She wanted to see if it would improve their social skills and help them socialise more. She compared one group of children with autism who had the new therapy (Condition A) with a group of children with autism who received no therapy (Condition B).

Marya collected the data from the questionnaire filled in by the parents of the children six months after the therapy ended. The higher the score on the questionnaire, the more difficult it was to socialise.

Marya's results are shown in **Table 3**.

Condition A Score on the questionnaire for those who received the new therapy	Condition B Score on the questionnaire for those who received no therapy
0	3
1	2
3	4
2	5
0	3
0	2
2	1
1	5
1	6
0	4
Range = 3	Range = 5

Table 3

- (a) Calculate the range of Condition B and complete **Table 3** with your answer.

(1)

SPACE FOR CALCULATIONS

$$\text{Range} = \text{highest} - \text{lowest} = 6 - 1 = 5$$



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- (b) Marya used the mean as a measure of central tendency when analysing the results of her questionnaire.

Explain why Marya used the mean rather than the mode when analysing the results of her questionnaire.

(2)

The mean is better as it uses all the questionnaire scores for all ten children in each condition, so it is a more meaningful and sensitive representation of social skills than the mode, which would only use the most frequent score.

- (c) Explain **one** improvement Marya could make to her investigation.

(2)

Marya could collect the questionnaire data a few years after the therapy rather than after six months. This would allow her to see whether the new therapy had a long-term effect on the social skills of the children with autism.

(Total for Question 12 = 5 marks)



13 Evaluate the classic study by van IJzendoorn and Kroonenberg (1988).

(8)

Van IJzendoorn and Kroonenberg (1988) aimed to use data from a variety of countries to compare cross-cultural (and intra-cultural) differences in attachment types. They carried out a meta-analysis, using a computer search to find studies that had used the Strange Situation to study mother-child attachment. Only studies classifying children into types A (avoidant), B (secure) and C (resistant) were used, and studies that just reported 'insecure', used special groups such as children with Down's syndrome, or had fewer than 35 children were eliminated. This left 32 studies from eight countries, with almost 2000 classifications. The results showed that secure attachment was the most common type in all countries, at about 65% overall. Avoidant attachment was relatively more common in West Germany and resistant attachment in Israel and Japan, and variation within cultures was about 1.5 times greater than variation between cultures. One strength is that the use of a number of studies from each country led to a large sample size, so the results can be said to be generalisable. The use of specific criteria, such as only including studies of mother and child attachment, makes the study easier to replicate.

However, children with Down's syndrome were excluded, so it cannot be said that the results are true for attachment types of those children. Also, as a meta-analysis, any issues with how the original studies were carried out, such as the Strange Situation lacking validity in some cultures, will also affect the validity of this study, and some countries were represented by very few studies.

Overall, the study gives strong, generalisable support for secure attachment being universal, although its conclusions depend on the quality of the original studies.



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(Total for Question 13 = 8 marks)



- 14** Donald is two and a half years old. He was in hospital for two months. His parents found it difficult to spend a lot of time with him whilst he was in hospital.

When Donald came home, his parents were worried as he cried a lot and did not seem to be as happy as he was before he went into hospital. They are also concerned that the time he spent in hospital may affect his future behaviour.

Assess how far research into deprivation could explain the short-term and long-term effects of Donald's stay in hospital.

You must make reference to the context in your answer.

(16)

Deprivation is when a child forms an attachment but is then separated from their attachment figure. Robertson and Bowlby (1952) described three stages of short-term deprivation: protest, where the child cries and is angry; despair, where the child becomes withdrawn and appears calm; and detachment, where the child seems to recover but rejects the carer on reunion. Robertson's (1953) films, such as of Laura, a two-year-old in hospital, showed this distress. Spitz (1946) found that children in an institution became depressed (anaclitic depression), especially if deprived of the mother for three months or more, and that partially depressed children took two to three months to readjust once reunited. For long-term effects, Bowlby's (1944) study of 44 juvenile thieves found that many affectionless psychopaths had experienced early maternal separation, suggesting deprivation can lead to delinquency. Goldfarb (1955) found the older a child was when fostered or adopted, the less emotionally secure they were, and Olsavsky et al. (2013) found that maternally deprived children showed a similar amygdala response to their mother and a stranger and were more indiscriminately friendly.

When Donald was first in hospital he may have gone through protest, crying a lot and wanting his parents near him, then despair. His crying and unhappiness at home may reflect the detachment stage or anger at being separated. As he has only been deprived of his parents for two months, his depression should not become severe and he should readjust within a few months, according to Spitz. As Donald was over two years old and



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had already formed attachments, the stay should not damage his emotional security long-term. However, Donald may be overly friendly to people he does not know when he comes out of hospital.

Robertson's (1953) research gathered detailed observational evidence about the children's behaviour, so it can be said to be valid in showing the short-term effects of deprivation. However, Robertson observed only a few children individually, so the results may not explain the short-term effects on all children, as individual differences such as temperament may matter. Spitz (1946) found that adding more care in institutions led to fewer problems, which can be applied to hospitals where named nurses give individualised care, which may protect Donald. Goldfarb (1955) used a control group of children fostered at an early age, which gives his research validity as it shows the effects of institutional care rather than of not being with the natural mother.

However, Olsavsky et al. (2013) studied children institutionalised for a long time, so the results may only show the effects of long-term institutionalisation rather than a two-month hospital stay like Donald's. Bowlby's (1944) study was retrospective and correlational, so other factors may explain delinquency. Much of the research is also dated, as hospitals now have open visiting and key workers for children, so its findings may be less relevant to Donald today.

In conclusion, research into deprivation explains Donald's short-term effects well, as his crying fits the protest, despair and detachment pattern. It is less able to predict long-term effects, as much of it involves prolonged institutional care, so with sensitive parenting Donald is unlikely to suffer lasting harm.

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(Total for Question 14 = 16 marks)

TOTAL FOR SECTION B OPTION 2 = 36 MARKS



OPTION 3: HEALTH PSYCHOLOGY

If you answer the questions in Option 3 put a cross in the box ☒ .

Answer ALL questions.

- 15** Rose is a health psychologist. She has been asked to create an anti-drugs campaign targeted at young adults. The anti-drugs campaign aims to prevent young adults misusing legal and illegal drugs. Rose wants her campaign to reach as many young adults as possible, and for it to offer memorable information.

(a) Describe how Rose could carry out her anti-drugs campaign.

(4)

Rose should use a variety of media to reach as many young adults as possible, such as social media, websites and television adverts.

She could use the Yale model of communication, having a credible and attractive source leading the campaign, such as a celebrity who has overcome drug misuse, so that young adults trust the message.

To make the information memorable, Rose could use humour, vivid images and language that is easy to understand, so young adults are engaged, and possibly a moderate fear appeal showing the effects of legal and illegal drugs.

She could add helpline numbers or website addresses so that young adults who want more information or help know where to look for it.



P 5 7 0 6 4 A 0 4 5 5 6

- (b) Rose wanted to see whether her anti-drugs campaign was effective. She collected quantitative and qualitative data from her target population.

Describe how Rose could analyse her data to see if her anti-drugs campaign was effective.

(3)

Rose could conduct a thematic analysis on the qualitative data, looking for common themes in the young adults' comments about the anti-drugs campaign, such as whether they found it memorable.

For the quantitative data, Rose could calculate the mean drug use before and after the campaign and present it in a bar chart.

She could then use a Wilcoxon test to see if there was a statistically significant difference in drug use before and after the anti-drugs campaign, at $p \leq 0.05$.

(Total for Question 15 = 7 marks)



- 16** Marya has carried out a study to investigate whether a new treatment was effective for people addicted to alcohol. She wanted to see if it would stop them drinking alcohol. She compared the participants who had the new treatment (Condition A) with the participants who received no treatment (Condition B).

Marya recorded the number of alcoholic drinks consumed in a week six months after the treatment ended.

Marya's results are shown in **Table 4**.

Condition A Number of alcoholic drinks in a week for those who received the new treatment	Condition B Number of alcoholic drinks in a week for those who received no treatment
0	3
1	2
3	4
2	5
0	3
0	2
2	1
1	5
1	6
0	4
Range = 3	Range = 5

Table 4

- (a) Calculate the range of Condition B and complete **Table 4** with your answer.

(1)

SPACE FOR CALCULATIONS

$$\text{Range} = \text{highest} - \text{lowest} = 6 - 1 = 5$$



P 5 7 0 6 4 A 0 4 7 5 6

(b) Marya used the mean as a measure of central tendency.

Explain why Marya used the mean rather than the mode in her study.

(2)

The mean is better as it uses all the scores for the number of alcoholic drinks each participant had in a week, so it is a more meaningful and sensitive representation than the mode, which would only use the most frequent number of drinks.

(c) Explain **one** improvement Marya could make to her study.

(2)

Marya could gather her data a few years after the treatment rather than after six months. This would allow her to see whether the new treatment had a long-term effect on the amount of alcohol the participants drank.

(Total for Question 16 = 5 marks)

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17 Evaluate the classic study by Olds and Milner (1954).

(8)

Olds and Milner (1954) aimed to see whether electrical stimulation of certain areas of rats' brains had a reinforcing effect. Fifteen male hooded rats had electrodes implanted into different areas of the brain. In a Skinner box, pressing a lever delivered a short electrical current to their brain. The rats had six to twelve hours (acquisition) where they received stimulation every time they pressed the lever and one to two hours (extinction) where pressing the lever did not lead to stimulation. When the electrode was in the septal area, the rats pressed the lever in increasing amounts, with one rat pressing up to 7500 times in 12 hours, whereas electrodes in other areas produced little response. Lever pressing stopped when the current was switched off, showing stimulation itself was reinforcing.

One strength is that the results have validity, as the rats had free access to food and water apart from when they were in the Skinner box, so the stimulation was not reducing any other drive and was reinforcing in its own right. The data were also objective, as the number of lever presses was recorded, which increases reliability because it did not depend on subjective interpretation of the rats' behaviour.

However, as rats' brains are not exactly the same as human brains, the results may not apply to humans and human addiction. The study can also be seen as unethical, as the rats had to go up to twelve hours without food and water and had brain surgery, when the time spent without food or water could have been shorter.

Overall, the study gives objective evidence for a pleasure (reward) centre in the brain, but generalising it to human addiction should be done cautiously.



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(Total for Question 17 = 8 marks)

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18 Donald is addicted to nicotine. Both his parents and his friends smoke cigarettes. His friends started smoking because they thought it made them look more mature.

He finds that nicotine helps him relax, and relieves any stress he feels. Donald finds that there are certain times during the day when he craves a cigarette, such as just after he has eaten.

Evaluate **one** learning explanation for nicotine addiction that could account for Donald smoking cigarettes.

You must make reference to the context in your answer.

(16)

Social learning theory (Bandura) explains nicotine addiction through observation and imitation of role models. People observe the process of smoking, such as how to light a cigarette and inhale. We are more likely to pay attention to a role model if they are relevant to us, for example the same sex, similar age or high status. The behaviour must be retained in memory, and the person must be able to reproduce it, for example physically lighting a cigarette. If the role model is seen being rewarded for smoking, such as appearing more relaxed or mature, the observer is vicariously reinforced, which increases the likelihood of imitation. Once smoking has been tried, people may be motivated to carry on as they are extrinsically motivated by the positive reactions of others, and then the effects of nicotine maintain the addiction.

Donald would have observed both his parents and his friends smoking, such as inhaling the cigarette and blowing out the smoke. He may have paid particular attention to his father as he is the same sex as Donald. His friends started smoking because they thought it made them look more mature, so if Donald saw them being admired, he would be vicariously reinforced and motivated to smoke to gain the same approval. He may then be extrinsically motivated to carry on smoking as his friends see him as mature and part of the group.

There is evidence to support social learning theory. Bandura, Ross and Ross (1961) found that children copied the aggressive behaviour of adult role models, especially same-sex models, which suggests people may start smoking by imitating role models



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such as Donald's father. Ennett et al. (1994) found that adolescents tended to have the same smoking behaviour as their friends, suggesting social learning can explain nicotine addiction. Social learning theory can also be seen as a better explanation than operant conditioning for starting smoking, as it explains why people carry on even though they often find their first cigarette unpleasant.

However, Bandura, Ross and Ross (1961) used children aged three to five, so the findings may not explain nicotine addiction, as people are usually older when they start smoking. Also, groups of friends may all smoke because people choose to be friends with other smokers, rather than because they are vicariously reinforced by their friends. Social learning theory also ignores biological factors, such as nicotine stimulating dopamine release in the reward pathway, so it is not a full explanation. It also cannot easily explain Donald's cravings after eating or the relaxation and stress relief he feels, which are better explained by classical conditioning of cues and negative reinforcement through relief of withdrawal.

In conclusion, social learning theory explains well why Donald started smoking, given that his parents and friends are role models, but it is better at explaining initiation than maintenance, so biological and conditioning explanations are needed to explain his continuing addiction.

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