

Please check the examination details below before entering your candidate information

Candidate surname					Other names														
Pearson Edexcel										Centre Number					Candidate Number				
Level 3 GCE																			
Time 1 hour 30 minutes										Paper reference					8PS0/02				
Psychology																			
Advanced Subsidiary																			
PAPER 2: Biological Psychology and Learning Theories																			
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.
- Answer the questions in the spaces provided
– *there may be more space than you need.*

Information

- The total mark for this paper is 70.
- 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.
- Good luck with your examination.

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

N	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				
	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

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

Critical values for chi-squared distribution

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

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



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_b															
		5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
N_a																	
$p \leq 0.05$ (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	

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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.

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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.



Answer ALL questions.

SECTION A: BIOLOGICAL PSYCHOLOGY

- 1 When studying biological psychology, you will have learned about the structure and function of the brain.

(a) Complete **Table 1** with the name of the correct lobe in the space provided.

(3)

Lobe	Function of the lobe
	This lobe is involved in higher executive functioning, motor skills, planning, reasoning and problem solving.
	This lobe is involved in interpreting visual stimuli, depth and distance.
	This lobe is involved in interpreting sensory information, including touch, temperature, pain and pressure.

Table 1

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(b) Explain **one** strength and **one** weakness of brain functioning as an explanation of aggressive human behaviour.

(4)

Strength

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Weakness

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(Total for Question 1 = 7 marks)

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- 2 Phil wanted to find out if there was a relationship between drinking coffee and alertness.

He randomly selected six doctors at a local hospital who worked on a busy Friday night and who all drank coffee. At the end of a 12-hour shift he asked the doctors to record how many cups of coffee they had drunk and their alertness.

Phil asked the doctors to rate their alertness on a scale of one to five (where one was low alertness and five was high alertness).

The results of Phil's study are shown in **Table 2**.

Doctor	Total number of cups of coffee drunk	Self-reported alertness score
A	6	5
B	3	4
C	5	5
D	2	1
E	4	4
F	3	4

Table 2

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- (a) Complete **Table 3** and calculate Spearman's rank correlation coefficient between the total number of cups of coffee drunk in one 12-hour shift and the self-reported alertness score.

(4)

Total number of cups of coffee drunk	Rank 1	Self-reported alertness score	Rank 2	d	d ²
6	6	5	5.5		
3	2.5	4	3		
5	5	5	5.5		
2	1	1	1		
4	4	4	3		
3	2.5	4	3		
				Total:	

Table 3

SPACE FOR CALCULATIONS

Spearman's rank correlation coefficient



(d) Explain **two** improvements that Phil could make to his investigation.

(4)

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(Total for Question 2 = 14 marks)

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3 Evaluate the role of evolution in human development.

(8)

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(Total for Question 3 = 8 marks)

TOTAL FOR SECTION A = 29 MARKS



Answer ALL questions.

SECTION B: LEARNING THEORIES

4 As part of your psychology course you were required to carry out a practical investigation when studying learning theories.

(a) State the hypothesis for your practical investigation in learning theories.

(2)

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(b) Describe how you gathered quantitative data for your practical investigation in learning theories.

(2)

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(c) Explain **one** conclusion that you made from the quantitative data for your practical investigation in learning theories.

(2)

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(d) Explain **two** weaknesses of your practical investigation in learning theories.

(4)

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(Total for Question 4 = 10 marks)

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5 You will have learned about Bandura's (1961) Bobo doll experiment.

(a) State **one** aim of Bandura's (1961) Bobo doll experiment.

(1)

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(b) Explain **one** strength of Bandura's (1961) Bobo doll experiment.

(2)

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(c) Explain **one** improvement you could make to Bandura's (1961) Bobo doll experiment.

(2)

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(Total for Question 5 = 5 marks)

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6 In learning theories you will have studied classical conditioning.

(a) Using an example, define 'extinction' as a feature of classical conditioning.

(2)

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(b) Explain **one** strength and **one** weakness of classical conditioning.

(4)

Strength

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Weakness

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(Total for Question 6 = 6 marks)



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(Total for Question 7 = 8 marks)

TOTAL FOR SECTION B = 29 MARKS



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(Total for Question 8 = 12 marks)

TOTAL FOR SECTION C = 12 MARKS
TOTAL FOR PAPER = 70 MARKS



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