Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson International Advanced Level

Time 2 hours

Paper reference **WPS02/01**

Psychology

International Advanced Subsidiary
PAPER 2: Biological Psychology, Learning Theories and Development

Calculators may be used.

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 96.
- 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 ▶

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FORMULAE AND STATISTICAL TABLES

Standard deviation (sample estimate)

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

Spearman's rank correlation coefficient

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

Critical values for Spearman's rank

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

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

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Chi-squared distribution formula

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

Critical values for chi-squared distribution

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

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

Wilcoxon Signed Ranks test process

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

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

Critical values for the Wilcoxon Signed Ranks test

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

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

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SECTION A

Biological Psychology

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

1 (a) State **one** area of the brain that influences human aggression.

(1)

(b) Explain **two** weaknesses of brain functioning as an explanation of aggression.

(4)

1

2

(Total for Question 1 = 5 marks)

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2 Estelle conducted an investigation to see if there was a difference in the number of aggressive thoughts males and females had. She gathered participants from a local healthcare centre to take part in her study. Estelle asked her participants to record the average number of aggressive thoughts they had in a day.

(a) Describe how Estelle may have used a volunteer sampling technique to gather her participants.

(2)

(b) Explain **one** weakness of Estelle using a volunteer sampling technique in her investigation.

(2)

Estelle's results for her male participants are shown in **Table 1**.

Participants	Average number of aggressive thoughts in a day
A	4
B	5
C	7
D	4
E	8
F	1

Table 1

(c) Calculate the median score for the number of aggressive thoughts in a day for males.

(1)

Space for calculations

Median score .....

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Estelle's results for female participants are shown in **Table 2**.

Participant	Average number of aggressive thoughts in a day	$(x - \bar{x})$	$(x - \bar{x})^2$
G	3		
H	5		
I	2		
J	4		
K	1		
L	5		
Mean = 3.33		Sum of differences^2 =	
		Standard deviation = ...	

Table 2

(d) Calculate the standard deviation for the data gathered by Estelle by completing **Table 2**.

You **must** give your answers to **two** decimal places.

The formulae can be found at the front of the paper.

You **must** show your working out.

(4)

Space for calculations

(Total for Question 2 = 9 marks)

3 In your studies of biological psychology, you will have learned about the study by Brendgen et al. (2005).

(a) Give **two** aims of Brendgen et al. (2005).

(2)

1 .....

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2 .....

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(b) Explain **one** strength and **one** weakness of Brendgen et al. (2005) in terms of the sample used.

(4)

Strength

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Weakness

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(Total for Question 3 = 6 marks)

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4 Nancy has just returned from a trip abroad. She is finding it hard to get to sleep at night as she does not feel tired. Nancy wants to go to sleep in the middle of the day as she is very tired, but cannot sleep as she is at work in an office.

Her eating habits have been affected, as she still wants a big meal in the morning, which would have been in the evening when she was abroad. She has not been out with her friends in the evening since she returned home, as she has felt too tired.

(a) Describe how external zeitgebers could help Nancy regulate her sleep wake cycle.

(4)

(b) Explain **one** strength of Nancy using external zeitgebers to regulate her sleep wake cycle.

(2)

(Total for Question 4 = 6 marks)

5 Assess the role of infradian rhythms in human behaviour.

(8)

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(Total for Question 5 = 8 marks)

TOTAL FOR SECTION A = 34 MARKS

SECTION B

Learning Theories and Development

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

6 Rose salivates when she smells fresh bread. Her grandma bakes a lot of fresh bread. Rose now salivates when she sees her grandma.

(a) Describe what is meant by the term 'neutral stimulus' in relation to Rose's behaviour.

(2)

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

(2)

(Total for Question 6 = 4 marks)

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7 Pip carried out a covert observation. He investigated whether children would imitate pro-social acts that were demonstrated by an adult. He went to a local school at a staff meeting and asked two teachers to help in his research.

Pip asked one teacher to help their class tidy up the books. He asked the other teacher not to help their class tidy up the books.

Pip observed the children in each class the next week. He tallied how many children tidied up the books for the teacher.

(a) Describe **one** ethical issue Pip may have considered when carrying out his observation.

(2)

(b) Pip used a chi-squared test on his data. He found a significant difference between the children who saw the teacher help tidy up the books and the children who did not see a teacher help tidy up the books.

Identify the critical value Pip used for a one-tailed (directional) test at $p \leqslant 0.01$ where $df = 1$.

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

(1)

(c) Explain **one** strength of Pip using a covert observation.

(2)

(d) Explain **one** improvement Pip could make to his observation.

(2)

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(e) Pip also noted down any conversation the children had if they helped tidy up the books, gathering qualitative data.

Explain **one** strength and **one** weakness of Pip gathering qualitative data.

(4)

Strength

Weakness

(Total for Question 7 = 11 marks)

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8 In your studies of learning theories and development, you will have learned about one of the following contemporary studies in detail:

- Prot (2014)
- Bastian et al. (2011).

(a) Describe the results of your chosen contemporary study.

(3)

Chosen study.....

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(b) Explain **two** strengths of your chosen contemporary study.

(4)

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(c) Explain **two** improvements that could be made to your chosen contemporary study.

(4)

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(Total for Question 8 = 11 marks)

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9 Lette is training to become a psychoanalyst. As part of her training, she has to conduct a case study about Bill who has relationship issues.

Bill has kept a diary of his dreams over the past month. He comes to regular appointments with Lette where he is encouraged to talk openly about anything he wants to talk about.

At the end of the case study Lette has to present her conclusions to a panel of experts.

Discuss how Lette could carry out her case study about Bill.

You must make reference to the context in your answer.

(8)

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(Total for Question 9 = 8 marks)

TOTAL FOR SECTION B = 34 MARKS

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SECTION C

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

10 Evaluate **one** therapy, other than light therapy, that could be used for seasonal affective disorder.

(12)

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(Total for Question 10 = 12 marks)

11 Bob is 17 years old and has been involved in a fight with a group of boys from another area of the town he lives in. He and his friends have previously been attacked by the group of boys.

Bob punched one boy and kicked another boy. When the police arrived Bob and his friends ran away and were not caught. His friend praised Bob once they got away from the fight.

Belle had seen Bob fight and later that day asked Bob to go on a date with her.

Bob wants to go back to the area on another night to fight the boys again.

To what extent can hormones and operant conditioning explain Bob's aggression?

You must make reference to the context in your answer.

(16)

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(Total for Question 11 = 16 marks)

TOTAL FOR SECTION C = 28 MARKS
TOTAL FOR PAPER = 96 MARKS

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