Please check the examination details below before entering your candidate information

Candidate surname	Other names

Pearson Edexcel
International Advanced Level

Centre Number | Candidate Number

Time 2 hours

Paper reference **WPS02/01**

Psychology

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

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 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 value 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)

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

Spearman's rank correlation coefficient

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

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

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

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.

SECTION A

BIOLOGICAL PSYCHOLOGY

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

1 State what is meant by the term 'external zietgeber'.

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(Total for Question 1 = 1 mark)

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2 Haziq carried out a correlation between testosterone levels and the number of aggressive acts in a month. He used a volunteer sample of two males and five females.

Haziq's results are shown in **Figure 1**.

A scatter graph to show the correlation between level of testosterone and number of aggressive acts in a month

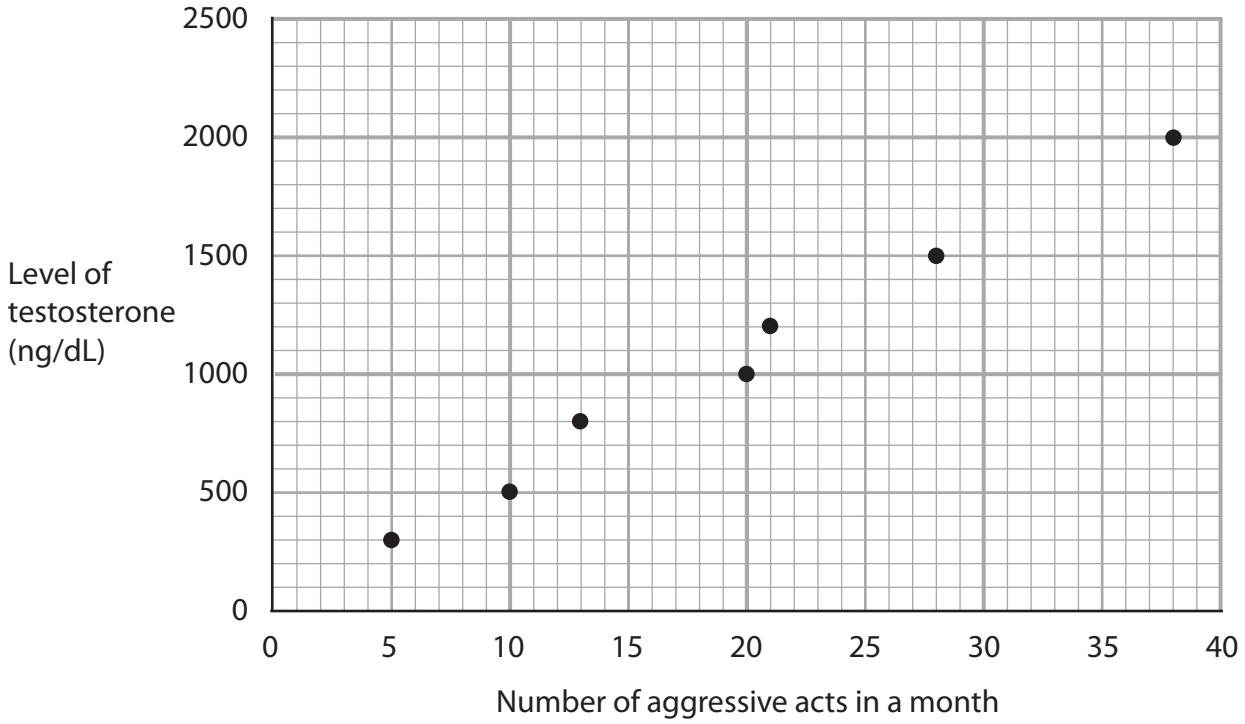

Figure 1

(a) Identify the type of correlation shown in **Figure 1**.

(1)

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(b) Haziq carried out a Spearman's rank test on his data. He used the p=0.05 level of significance rather than the p=0.01 level of significance. Haziq found that at p≤0.05 his correlation was significant.

Explain **one** difference between the p=0.05 and the p=0.01 levels of significance in relation to Haziq's correlation.

(2)

(c) Haziq decided to carry out the correlational research again, but this time with a stratified sample of 149 participants, as he thought this would improve his correlational research.

Justify whether changing the sample would improve Haziq's correlational research.

(2)

Haziq decided to carry out another investigation into the number of aggressive acts that boys aged 12 to 16 years old carried out in a month.

The results for Haziq's investigation are shown in **Table 1**.

Total number of boys aged 12 to 16 years old	Total number of aggressive acts carried out in a month
99	914.56

Table 1

(d) Give the order of magnitude for the total number of aggressive acts carried out in a month.

(1)

Space for calculations

Order of magnitude .....

(e) Calculate the mean number of aggressive acts carried out in a month.

You **must** give your answer to **three** decimal places.

(1)

Space for calculations

Mean .....

(Total for Question 2 = 7 marks)

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3 (a) Describe the role of the limbic system in aggression.

(4)

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(b) Explain **two** weaknesses of the limbic system as an explanation for aggression.

(4)

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2 .....

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(Total for Question 3 = 8 marks)

4 In your studies of biological psychology, you will have carried out a practical investigation.

(a) State **one** aim of your practical investigation.

(1)

(b) Describe the procedure of your practical investigation.

(4)

(c) Explain **one** conclusion you made from your practical investigation.

(3)

(d) Explain **one** improvement you could have made to the way you gathered your data for your practical investigation.

(2)

(Total for Question 4 = 10 marks)

5 In your studies of biological psychology, you will have learned about the following classic study in detail:

- Raine et al. (1997).

Assess Raine et al. (1997) in terms of generalisability and ethics.

(8)

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(Total for Question 5 = 8 marks)

TOTAL FOR SECTION A = 34 MARKS

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SECTION B

LEARNING THEORIES AND DEVELOPMENT

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

6 Rosie has recently started to pull her brother Jim's hair. Her mother uses operant conditioning to teach Rosie not to pull his hair. Every day that Rosie does not pull Jim's hair their mother gives her a sticker. Once Rosie has 10 stickers she can have some ice cream.

(a) Identify the primary reinforcer that Rosie's mother uses with Rosie.

(1)

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(b) Rosie no longer pulls her brother's hair, but she recently pulled the dog's tail. Rosie's mother took away her favourite toy for a day as a punishment.

State the type of punishment that Rosie's mother used after Rosie pulled the dog's tail.

(1)

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(c) The use of punishment did not teach Rosie how to play nicely with the dog.

Explain why punishment did not help Rosie learn how to play nicely with the dog.

(2)

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(Total for Question 6 = 4 marks)

7 Mackenzie carried out an observation with children aged two years old. He aimed to see how many boys did or did not play with a doll and how many girls did or did not play with a doll.

Once he had collected his results he wanted to carry out a chi-squared test on his data. Some of his calculations are shown in **Table 2.**

		Observed	Expected	O-E	$(O-E)^2$	$(O-E)^2/E$
Boys	**Did play with a doll**	6	6.5	–0.5	0.25	
	Did not play with a doll	4	3.5	0.5	0.25	
Girls	**Did play with a doll**	7	6.5	0.5	0.25	
	Did not play with a doll	3	3.5	–0.5	0.25	
				Chi-squared =		

Table 2

(a) Calculate the chi-squared for the data gathered by Mackenzie in his observation by completing **Table 2**.

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

(2)

Space for calculations

(b) Mackenzie gathered his sample of two-year-old children through opportunity sampling.

Describe how Mackenzie may have gathered his opportunity sample of two-year-old children.

(2)

(c) Mackenzie did not find a significant difference in his first observation. He decided to repeat the observation but used boys and girls aged seven years old.

He calculated chi-squared for the second observation and found a calculated value of 3.68.

Explain whether Mackenzie found a significant difference at $p \leq 0.05$, using a two-tailed (non-directional) test where $df = 1$.

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

(2)

(Total for Question 7 = 6 marks)

8 Haneen is 17 years old. She has seen her father change the oil in her mother's car several times. Her mother always thanks Haneen's father and bakes him his favourite cake after the oil has been changed.

Haneen has changed her car oil for the first time. She feels a sense of pride in her achievement and has decided to do the oil change in the future when her car needs it.

(a) Describe, using social learning theory, why Haneen changes her car oil.

(4)

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(b) Explain **one** weakness of social learning theory as an explanation for Haneen's behaviour.

(2)

(c) Compare social learning theory and Freud's psychosexual stages of development.

(4)

(Total for Question 8 = 10 marks)

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

- Capafóns et al. (1998).

(a) Describe the procedure used with the treatment group in Capafóns et al. (1998).

(4)

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(b) Explain **one** strength of Capafóns et al. (1998).

(2)

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(Total for Question 9 = 6 marks)

10 Evuska liked peanut butter sandwiches until she ate one as a child and it got stuck in her throat making her choke.

She now has a phobia of peanut butter sandwiches and chokes and gags when she sees one. Evuska also chokes and gags when she sees other sandwiches.

Discuss classical conditioning as an explanation of Evuska's phobia.

You must make reference to the context in your answer.

(8)

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(Total for Question 10 = 8 marks)

TOTAL FOR SECTION B = 34 MARKS

SECTION C

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

11 In your studies of learning theories and development, you will have learned about the following classic study in detail:

- Watson and Rayner (1920).

Evaluate the study by Watson and Rayner (1920) in terms of reliability and validity.

(12)

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(Total for Question 11 = 12 marks)

12 Ion and Nikola are two researchers who were each asked to carry out an investigation into aggression.

Ion decided to carry out a twin study to investigate whether aggression was due to genes or the environment. He gave his participants a questionnaire to measure their levels of aggression.

Nikola decided to carry out an animal experiment to investigate whether aggression was due to the structure of the brain. She used rats and investigated the effect on aggression of stimulating different areas of the brain.

Evaluate Ion and Nikola's use of twin studies and animal experiments to investigate aggression.

You must make reference to the context in your answer.

(16)

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(Total for Question 12 = 16 marks)

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

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