Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel International Advanced Level

Wednesday 24 May 2023

Afternoon (Time: 2 hours)

Paper reference **WPS02/01**

Psychology

International Advanced Subsidiary
UNIT 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.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

P71837A

N:1/1/1/1/1/1/

P 7 1 8 3 7 A 0 1 3 6

Pearson

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

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

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 (a) Describe the role of **one** hormone that influences aggression.

(2)

(b) Explain **one** strength and **one** weakness of hormones as an explanation of aggression.

(4)

Strength

Weakness

(Total for Question 1 = 6 marks)

2 Harold conducted an investigation to see if the number of hours spent playing online games affected aggression. He asked his participants to spend no more than one hour a day playing online games for the first week of his investigation. In the second week of his investigation the participants could spend up to seven hours a day playing online games.

Harold asked his participants to record how many aggressive thoughts they had each day. He then calculated the total number of aggressive thoughts for each participant in each week.

(a) Identify the independent variable (IV) and the dependent variable (DV) in Harold's investigation.

(2)

Independent variable

Dependent variable

(b) Once he had collected the data Harold calculated a Wilcoxon Signed Ranks test on the data.

Explain **one** reason why Harold conducted a Wilcoxon Signed Ranks test on his data.

(2)

Harold's results are shown in **Table 1**.

Participant	Number of aggressive thoughts recorded in week 1	Number of aggressive thoughts recorded in week 2	Difference	Ranked Difference
A	2	0		
B	7	8		
C	5	9		
D	1	1		
E	12	7		
F	3	3		
G	2	3		

Table 1

(c) Calculate the T value for the data gathered by Harold by completing **Table 1**.
The formulae and statistical tables can be found at the front of the paper.
You **must** show your working out.

(4)

Space for calculations

T = ...

(d) Explain **one** improvement Harold could make to his investigation.

(2)

.....

.....

.....

.....

.....

.....

(Total for Question 2 = 10 marks)

3 (a) Describe research into the circadian sleep-wake cycle.

(2)

.....

.....

.....

.....

.....

.....

(b) Explain **one** strength and **one** weakness of research into the circadian sleep-wake cycle.

(4)

Strength

Weakness

(Total for Question 3 = 6 marks)

4 Adeliza conducted a correlation to see if there was a relationship between the number of hours slept per night and mood. The higher the score for mood, out of ten, the more positive the mood. She hypothesised that the more hours slept the more positive the mood.

Adeliza calculated a Spearman Rho to see if her results were significant at $p \leqslant 0.05$.

(a) State what is meant by the term $p \leqslant 0.05$.

(1)

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

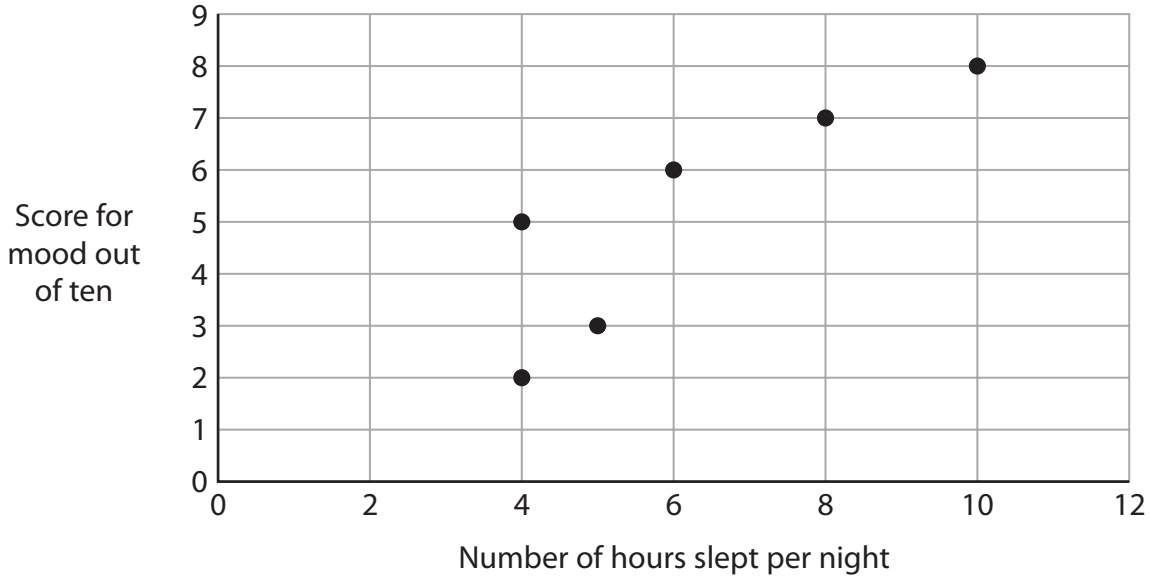


Figure 1

(b) Identify what type of correlation Adeliza found using the data in **Figure 1**.

(1)

.....

.....

.....

(c) Explain **one** weakness of Adeliza using a correlation for her study.

(2)

.....

.....

.....

.....

.....

.....

(Total for Question 4 = 4 marks)

5 In your studies of biological psychology you will have conducted a practical investigation.

Discuss ethics and reliability in relation to your practical investigation.

(8)

(Total for Question 5 = 8 marks)

TOTAL FOR SECTION A = 34 MARKS

BLANK PAGE

SECTION B

LEARNING THEORIES AND DEVELOPMENT

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

6 In your studies about learning theories and development you will have learnt about operant conditioning.

(a) Describe what is meant by the term 'secondary reinforcement' in operant conditioning.

(2)

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

(2)

(Total for Question 6 = 4 marks)

7 Stephen conducted an experiment using rats. He investigated whether positive reinforcement, using alcohol, would teach rats to press a lever. He placed individual rats in a box for a week, as shown in **Figure 2**.

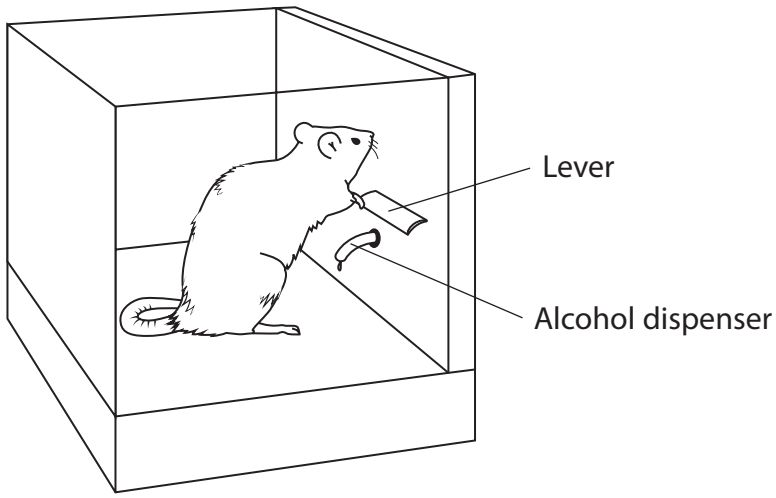


Figure 2

- Condition A: One group of 50 rats got a reward of a drink of alcohol after pressing a lever.
- Condition B: A different group of 50 rats did not get any reward after pressing a lever.

After the rats had been in the box for a week Stephen measured how many times the rats in each condition pressed the lever within five minutes.

(a) State a fully operationalised directional (one-tailed) hypothesis for Stephen's experiment.

(2)

Stephen calculated the mean number of times the rats had pressed the lever.
Stephen's results are shown in **Table 2**.

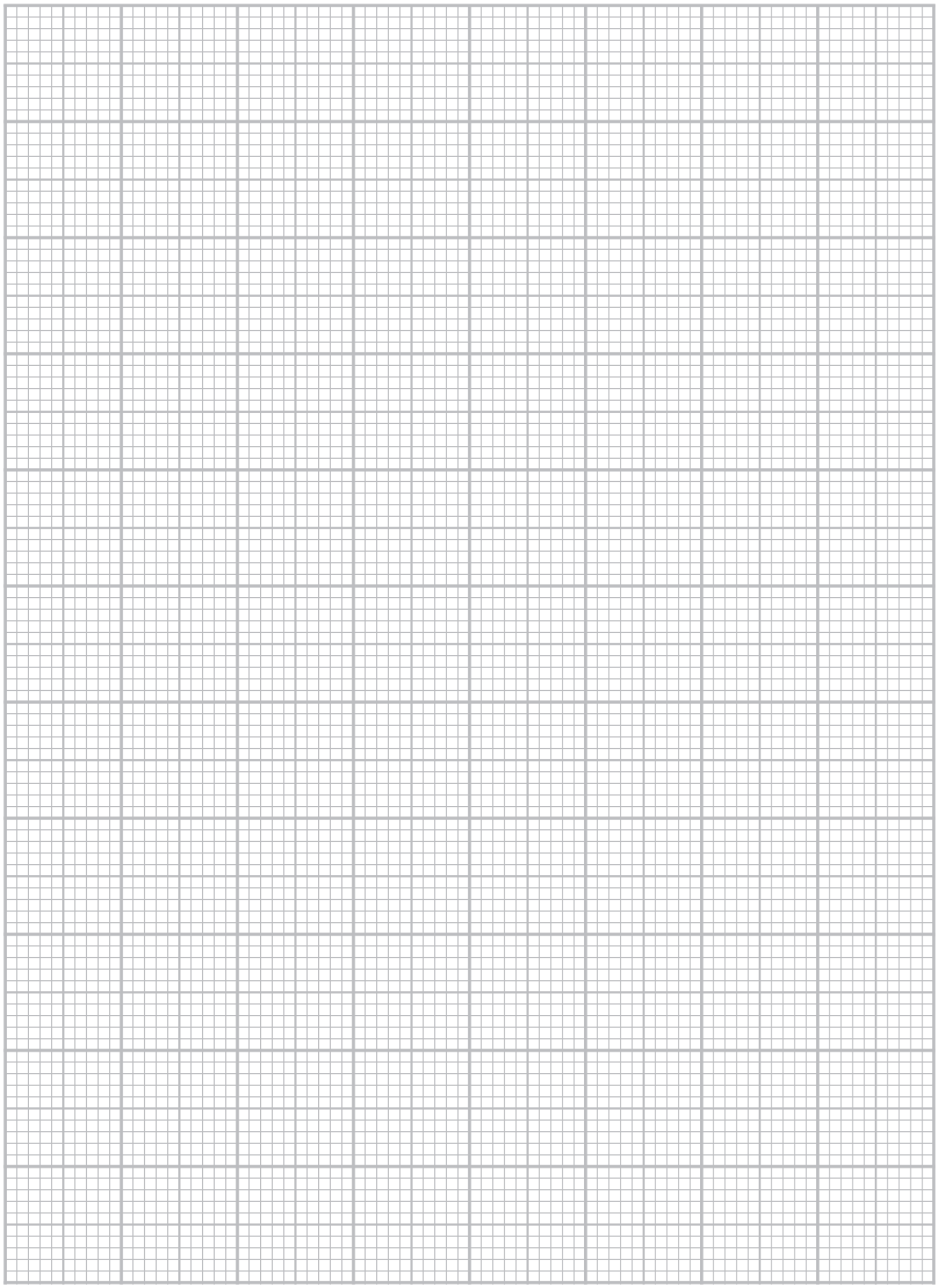
Condition	Mean number of times the rats pressed the lever within 5 minutes
Rats got a drink of alcohol after pressing a lever	13
Rats did not get any reward after pressing the lever	4

Table 2

(b) Draw a graph of Stephen's results using the data in **Table 2.**

(3)

Title



(c) Explain **one** conclusion Stephen could make using the data from **Table 2.**

(2)

(d) Explain **two** improvements Stephen could make to his experiment in terms of ethics.

(4)

1

2

(Total for Question 7 = 11 marks)

8 Phillipa was training her dog to give her its paw every time she said the word 'paw'. She decided to use a fixed ratio schedule of reinforcement using dog treats.

(a) Describe how Phillipa could use a fixed ratio schedule of reinforcement with her dog.

(2)

(b) Compare classical conditioning and operant conditioning as explanations of learning.

(4)

(Total for Question 8 = 6 marks)

9 In your studies of learning theories and development you will have learnt about the contemporary study in detail by Capafóns et al. (1998).

(a) State the sampling technique used by Capafóns et al. (1998).

(1)

.....

.....

.....

(b) Explain **two** ways that Capafóns et al. (1998) controlled extraneous variables in their study.

(4)

1 .....

.....

.....

.....

.....

.....

2 .....

.....

.....

.....

.....

.....

(Total for Question 9 = 5 marks)

10 Evaluate Freud's psychosexual stages of development.

(8)

(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 To what extent is systematic desensitisation an effective therapy/treatment?

(12)

(Total for Question 11 = 12 marks)

12 Berengaria is 20 years old. She comes from a family that is known to be aggressive. Her father has been to prison for hurting someone in a fight. Her mother frequently gets into arguments with the neighbours and recently threw a stone at a neighbour's house.

Berengaria enjoys watching violent films. Her favourite actress has recently starred in a film where the actress was involved in using her skills in kickboxing to fight a group of people.

The police recently came to Berengaria's house to question her about a fight that she had with another girl. The other girl alleges that Berengaria used kickboxing moves and stole her phone.

Evaluate the role of genes and social learning theory as explanations of Berengaria and her family's aggression.

You **must** make reference to the context in your answer.

(16)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

(Total for Question 12 = 16 marks)

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

BLANK PAGE

BLANK PAGE