Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel International Advanced Level

Friday 12 January 2024

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 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)

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

Spearman's rank correlation coefficient

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

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.

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SECTION A

Biological Psychology

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

1 In your studies of biological psychology, you will have learned about the classic study by Raine et al. (1997).

(a) State **one** conclusion of Raine et al. (1997).

(1)

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(b) Explain **one** weakness of Raine et al. (1997) in terms of generalisability.

(2)

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(Total for Question 1 = 3 marks)

2 Sienna conducted an investigation to see if changing the time that mice were exposed to bright light altered their sleeping pattern. She used two separate groups of mice and recorded when they slept during the investigation.

- Condition A: The mice were exposed to bright light between the hours of 7am and 7pm.
- Condition B: The mice were exposed to bright light between the hours of 7pm and 7am.

When the mice were not exposed to bright light, the mice were kept in dark conditions.

Sienna recorded how many mice slept between the hours of 7am and 7pm, and how many mice slept between the hours of 7pm and 7am.

(a) Identify the independent variable (IV) in Sienna's investigation.

(1)

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Sienna recorded whether the mice slept between 7am to 7pm or between 7pm to 7am.

Her results are shown in **Table 1**.

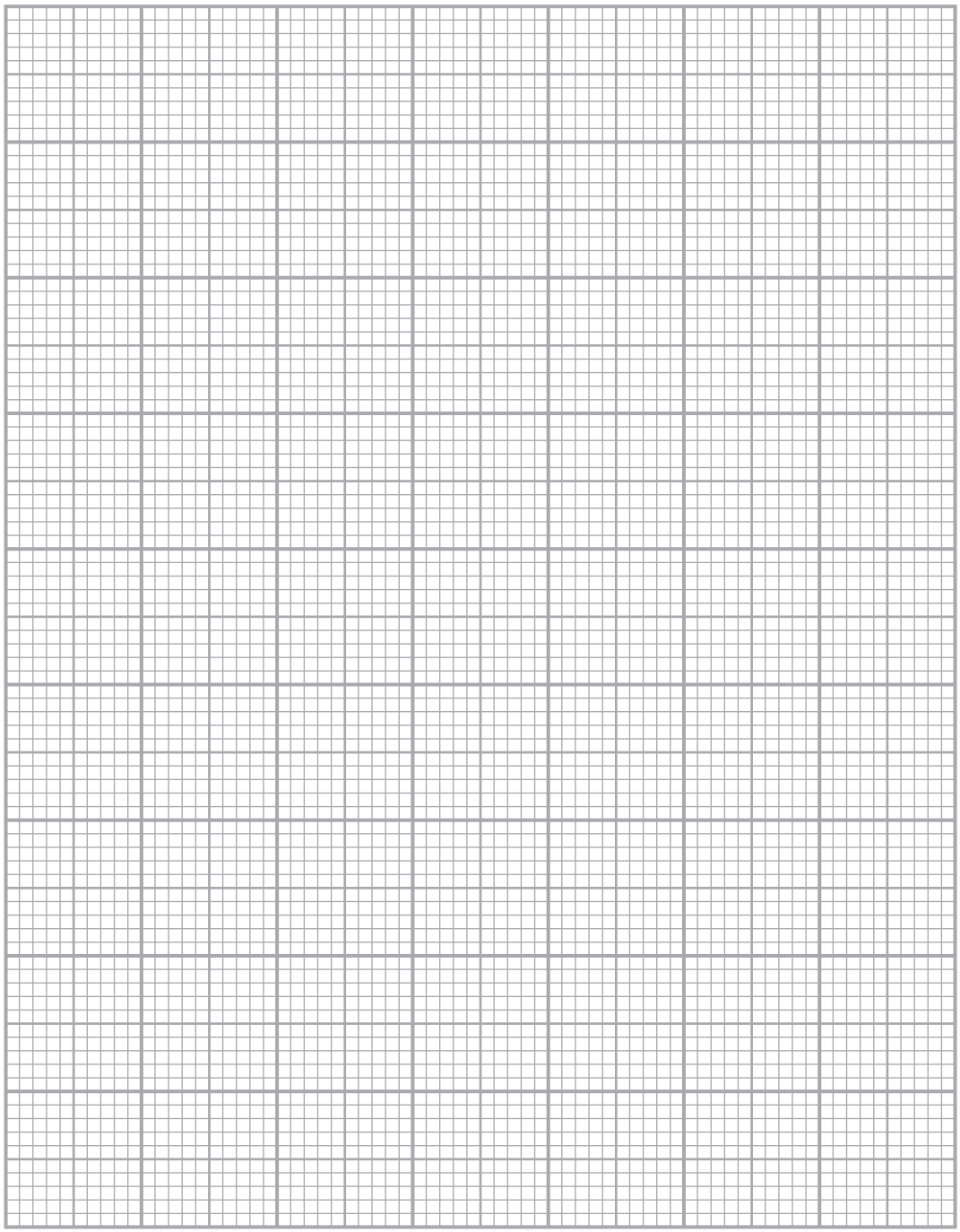
	Number of mice	**Number of mice**
	Slept between 7am and 7pm	**Slept between 7pm and 7am**
Condition A: Exposed to bright light between 7am and 7pm	24	1
Condition B: Exposed to bright light between 7pm and 7am	5	20

Table 1

(b) Draw a suitable graph for the sleeping patterns of the mice who were exposed to bright light between 7am and 7pm as shown in **Table 1**.

(3)

Title



(c) Explain **one** conclusion that can be made from the data in **Table 1**.

(2)

(d) Explain **one** reason why Sienna used mice instead of humans as participants in her investigation.

(2)

(Total for Question 2 = 8 marks)

3 (a) Describe the role of hormones in aggression.

(3)

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

(4)

Strength

Weakness

(Total for Question 3 = 7 marks)

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4 In your studies of biological psychology you will have learned about light therapy as it is used for seasonal affective disorder.

(a) Describe light therapy as a treatment for seasonal affective disorder.

(4)

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(b) Explain **one** weakness of light therapy as a treatment for seasonal affective disorder.

(2)

(c) Explain **one** reason why light therapy may be more effective than one other therapy for treating seasonal affective disorder.

(2)

(Total for Question 4 = 8 marks)

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5 Assess how well brain functioning can explain aggression as a human behaviour.

(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 In your studies of learning theories and development you will have learned about classical conditioning.

(a) Define, using an example, what is meant by the term 'unconditioned stimulus (UCS)' as used in classical conditioning.

(2)

(b) Define, using an example, what is meant by the term 'conditioned stimulus (CS)' as used in classical conditioning.

(2)

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

(2)

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(Total for Question 6 = 6 marks)

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7 Reece conducted an observation to investigate the effect of rewards on the behaviour of boys and girls. He went to a local school that used a points system to reward children who did as the teacher requested. Reece used a random sampling technique to select his sample of boys and girls from the local school.

He split the boys and girls into two conditions:

- Condition A: Those who only got 1 point or less during the day.
- Condition B: Those who got 5 or more points during the day.

Reece observed the children during one day using an overt observation. He noted down how many points the boys and girls received.

(a) Describe how Reece could have used a random sampling technique to gather his participants for his investigation.

(2)

Reece analysed his data using chi-squared.

(b) (i) Calculate the chi-squared for the data gathered by Reece by completing **Table 2**.

Your answers should all be correct to **one** decimal place.

(4)

		Observed	**Expected**	**O–E**	**$(O–E)^2$**	**$(O–E)^2/E$**
Condition A: 1 point or less during the day	Boys	3	6			
	Girls	8	5			
Condition B: 5 points or more during the day	Boys	9	6			
	Girls	2	5			
					Chi-squared =	

Table 2

Space for calculations

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(ii) Determine, using your answer for 7(b)(i), whether Reece's results are significant at $p \leqslant 0.05$ for a one-tailed test where $df=1$.

(2)

(c) Explain **two** improvements Reece could make to his observation.

(4)

1

2

(Total for Question 7 = 12 marks)

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8 In your studies of learning theories and development you will have learned about Freud's psychosexual stages of development.

(a) Name **two** of Freud's psychosexual stages of development.

(2)

1 .....

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2 .....

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(b) Patti is five years old. She has become very clingy to her father and wants to be with him all the time. She follows him round the house and says she wants to be a nurse when she grows up as that is what her father does.

Patti seems to be angry at her mother. She frequently shouts at her mother and tells her 'No' when asked to get ready for bed. Patti recently told her father that she wished her mother would go away.

Describe Freud's psychosexual stages of development in relation to Patti's behaviour.

(4)

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(c) Explain **one** weakness of Freud's psychosexual stages of development as an explanation of Patti's behaviour.

(2)

(Total for Question 8 = 8 marks)

9 Igor wanted to conduct an experiment using pigeons. He wanted to teach the pigeons how to play basketball. Igor had two groups of 20 pigeons. The pigeons would be kept in individual cages, apart from 20 minutes a day when he conducted his experiment. The pigeons would have regular access to food and water throughout the experiment.

Igor aimed to use behaviour shaping on one group of 20 pigeons where they were rewarded for each successive action. They would be rewarded with food when they picked up the mini basketball. They would be rewarded again when they carried it towards the hoop and again when they tried to put it in the hoop and finally when the ball went through the hoop.

The other group of pigeons would only be rewarded if they successfully put the ball through the hoop.

Discuss the use of ethical issues Igor must consider when carrying out his experiment.

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

SECTION C

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

10 Maud likes to watch her local hockey team play. She has noticed that they play more aggressively, hitting their opponents on the legs, when the referee is not looking. They also deliberately hit the ball at the opponents in an attempt to scare them. Maud has told her friend that the opposing teams are attacking less and seem scared. The local hockey team have started to win more games.

Maud recently played for her school hockey team. She deliberately hit a ball at an opponent. Maud's friends praised her for helping her team win the match. The hockey coach has told Maud she will not be picked to play in the next hockey match due to her aggressive playing.

Evaluate social learning theory as an explanation of Maud's behaviour.

You must make reference to the context in your answer.

(12)

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(Total for Question 10 = 12 marks)

11 In your studies you will have learned about Brendgen et al. (2005) and Watson and Rayner (1920).

Evaluate Brendgen et al. (2005) and Watson and Rayner (1920) in terms of ethics and reliability.

(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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