Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel International Advanced Level

Tuesday 20 May 2025

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 ▶

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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 In your studies of biological psychology, you will have learned about the role of hormones in aggression.

(a) State **two** hormones that play a role in human aggression.

(2)

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(b) Explain **two** strengths of hormones as an explanation of aggression.

(4)

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(Total for Question 1 = 6 marks)

2 Amadeus carried out an experiment to see if there was a difference in the types of online games males and females played. He used a volunteer sample by posting a link to a questionnaire online. Those who were interested could click on the link and answer the questionnaire.

The questionnaire asked participants to name the three online games they played the most. Amadeus then counted the number of responses for the three most popular online games played by males and played by females.

(a) Name the experimental design used by Amadeus in his experiment.

(1)

(b) Explain **one** weakness of Amadeus using a volunteer sampling technique for his experiment.

(2)

(c) Identify the level of measurement used in Amadeus's experiment.

(1)

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Amadeus conducted a follow-up investigation to gather qualitative data. He sent a second questionnaire to those who had responded to the first questionnaire. In the second questionnaire, Amadeus asked his participants to explain why they liked playing the games they played.

(d) Explain **one** reason why Amadeus collected qualitative data in his follow-up investigation.

(2)

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(Total for Question 2 = 6 marks)

3 In your studies of biological psychology, you will have learned about the structure of the brain as an explanation of aggression.

(a) Describe the structure of the brain as an explanation of aggression.

(4)

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

(4)

Strength

Weakness

(Total for Question 3 = 8 marks)

4 Sunshine conducted a correlation to investigate whether there is a relationship between the number of absences from university lectures and the grade from the examination at the end of the year.

She went to her local university and asked psychology students in their first year at university to estimate how many lectures they had missed in the previous term. Sunshine then asked the university to provide her with the percentage of marks each student received in the end of year examination.

(a) Identify the **two** fully operationalised variables in Sunshine's correlation.

(2)

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The results from Sunshine's correlation are shown in **Figure 1**.

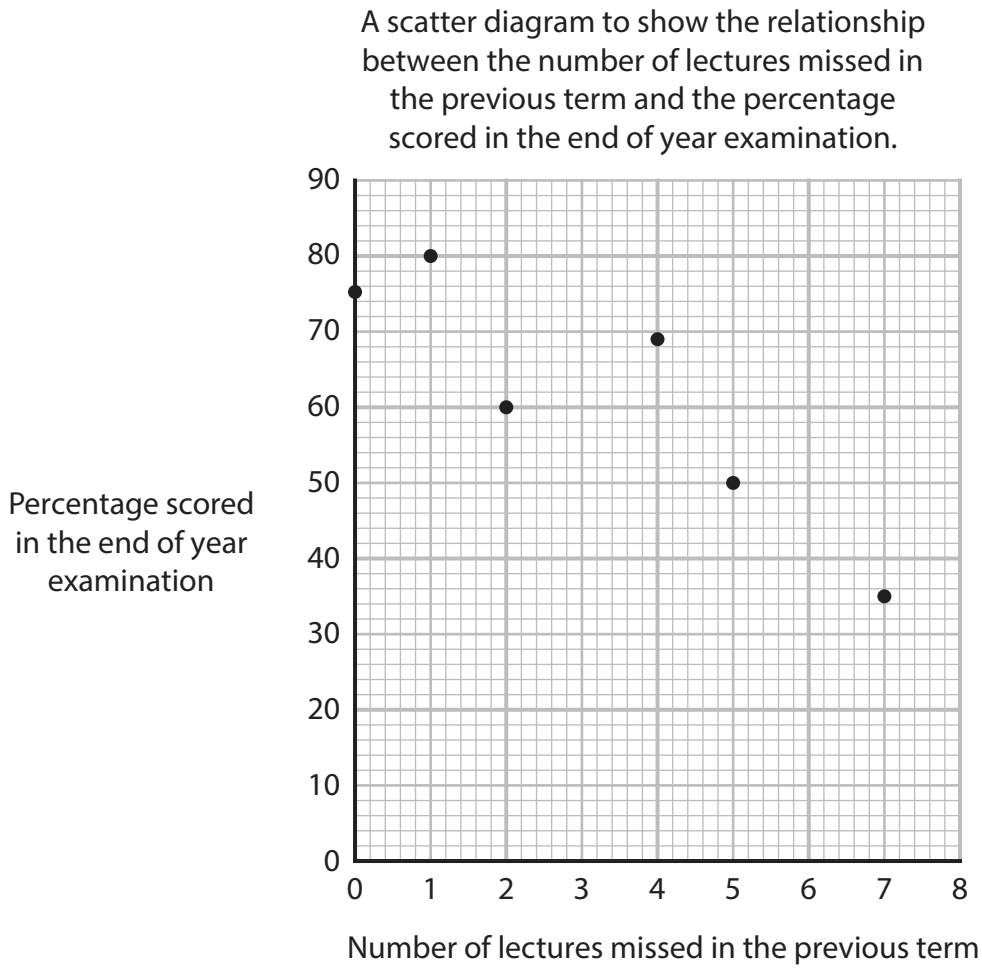

Figure 1

(b) Explain **one** conclusion Sunshine could make using the data in **Figure 1**.

(2)

(c) Explain **one** improvement Sunshine could make to her investigation.

(2)

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(Total for Question 4 = 6 marks)

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5 In your studies of biological psychology, you will have learned about Brendgen et al. (2005).

Assess the effectiveness of the study by Brendgen et al. (2005) in explaining aggression.

(8)

(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 Jorge behaves badly at school. His teacher has decided to try and use operant conditioning to change his behaviour.

When Jorge sits still and concentrates on his work for five minutes, he is given a stamp on a reward card. After Jorge has collected 20 stamps, he can have a sweet. If Jorge distracts other children he is put on a table on his own, which he does not like.

(a) Identify the secondary reinforcement that is used with Jorge.

(1)

(b) Identify the negative reinforcement that is used with Jorge.

(1)

(c) The teacher will use a continuous reinforcement schedule with Jorge.

Explain **one** reason why this may not be the most effective reinforcement schedule to use with Jorge.

(2)

(Total for Question 6 = 4 marks)

7 Einor carried out an investigation to see if cats could be classically conditioned. He had two groups of different cats.

- Condition A: The cats heard the sound of a dog barking just before they were presented with food.
- Condition B: The cats heard no sound just before they were presented with food.

After four weeks of classically conditioning the cats in Condition A, Einor presented both groups of cats with the sound of dogs barking. He measured the saliva of all the cats in millilitres.

Einor's results for Condition A are shown in **Table 1**.

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(a) Calculate the standard deviation for the cats in Condition A to **two** decimal places for the data gathered by Einor 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)

	Condition A: **Amount of saliva, in millilitres, in the cats that heard the dog barking when presented with food after four weeks of classical conditioning**	$x - \bar{x}$	$(x - \bar{x})^2$
A	4		
B	7		
C	4		
D	9		
E	3		
Mean = 5.4		Sum of differences^2 =	
Standard deviation = ...			

Table 1

Space for calculations



(b) Explain **one** ethical issue Einor should have considered before conducting his investigation with the cats.

(2)

(c) Explain **one** practical improvement Einor could have made to his investigation with the cats.

(2)

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(d) Einor then presented food to the cats without the sound of a dog barking. Three weeks later, the cats in Condition A heard a dog barking. When Einor measured the saliva, he found that the amount of salivation the cats produced after they heard the dog barking was increased.

Explain, using classical conditioning, **one** reason why the amount of saliva the cats produced had increased.

(2)

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(Total for Question 7 = 10 marks)

8 In your studies of learning theories and development, you will have learned about psychoanalysis as a therapy/treatment.

(a) Describe psychoanalysis as a therapy/treatment.

(4)

(b) Explain **one** weakness of psychoanalysis as a therapy/treatment.

(2)

(Total for Question 8 = 6 marks)

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9 In your studies of learning theories and development, you will have learned about the study by Watson and Rayner (1920).

(a) Explain **two** weaknesses of the study by Watson and Rayner (1920).

(4)

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(b) Explain **one** improvement that could be made to the study by Watson and Rayner (1920).

(2)

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(Total for Question 9 = 6 marks)

10 Navya has conducted an observation at a football match to see if male or female supporters behave differently during the match. She gained permission from the football club to carry out the observation, but the supporters did not know they were part of an observation.

Navya was in the crowd watching the match and wearing the colours of the local team. Her participants were the football supporters who sat in the three rows in front of her. Navya noted down every time males insulted the referee or a member of the opposing team, and every time females did the same.

Discuss Navya's use of the observational research method to see if male or female supporters behaved differently at the football match.

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

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SECTION C

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

11 Noah has been diagnosed with seasonal affective disorder. Every winter he feels depressed. Noah's symptoms include lacking the motivation to see his friends, or go to the gym. He also sleeps more during the winter months. Noah does not eat as much food in the winter months as he does not feel hungry.

Evaluate infradian rhythms as an explanation of Noah's seasonal affective disorder.

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

(12)

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12 Mila is 22 years old and has been arrested for fighting after she hurt a woman whilst in a restaurant. Mila said the other woman was rude to her. Mila's mother has been rude to Mila in the past.

Mila has previously thrown a book at a person in her local book club after disagreeing with what the person said about a book. Mila was warned that if she was aggressive again, she would no longer be able to go to the book club. After the arrest, Mila can no longer go to her local book club.

Mila became homeless after the arrest when her father threw her out of the house because she was rude and aggressive to her stepmother. Mila said it was her stepmother's fault that Mila was rude and aggressive, as the stepmother takes all her father's attention away from Mila.

To what extent can genes and Freud's psychosexual stages of development explain Mila's aggressive behaviour?

You **must** refer 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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