Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel 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 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.

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) Define what is meant by the term 'external zeitgeber'.

(1)

(b) Explain **two** strengths of the role of external zeitgebers in explaining the regulation of the sleep-wake cycle.

(4)

1

2

(Total for Question 1 = 5 marks)

2 Harrison conducted an experiment into the effect of antidepressants on people who had seasonal affective disorder. He allocated his participants into one of two different conditions.

- Condition A: Given antidepressants.
- Condition B: Not given antidepressants.

Harrison asked all the participants to record their mood in a daily diary for a month. He used a rating scale from 1 (happy mood) to 7 (low mood). When he had collected the data, Harrison then calculated an average mood score for each participant over the month.

(a) State a fully operationalised null hypothesis for Harrison's experiment.

(2)

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

Condition A: Participants were given antidepressants	Average mood score for the month from 1 to 7	Condition B: Participants were not given antidepressants	Average mood score for the month from 1 to 7
A	2	G	4
B	4	H	5
C	1	I	3
D	3	J	5
E	2	K	6
F	2	L	3

Table 1

(b) Calculate the mean score for **Condition B**. You **must** give your answer to **two** decimal places.

(1)

Space for calculations

Mean score for **Condition B** .....

(c) Calculate the median score for **Condition A**.

(1)

Space for calculations

Median score for **Condition A** .....

(d) Harrison calculated the standard deviation for both conditions. The standard deviations are shown in **Table 2**.

Standard deviation for condition A: Participants were given antidepressants	Standard deviation for condition B: Participants were not given antidepressants
1.03	1.21

Table 2

Explain what the standard deviations show about Harrison's results.

(2)

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(e) Explain **one** weakness of Harrison's experiment.

(2)

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(Total for Question 2 = 8 marks)

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

- Raine et al. (1997).

(a) Describe the results of the classic study by Raine et al. (1997).

(3)

(b) Explain **one** strength and **one** weakness of the classic study by Raine et al. (1997).

(4)

Strength

Weakness

(Total for Question 3 = 7 marks)

4 Meryl has decided to carry out an investigation to determine whether there is a relationship between hormones and aggression. She gathered 13 participants through volunteer sampling. Meryl measured the participants' cortisol levels and how aggressive they had been over the past week.

(a) Describe the procedure Meryl could have used for her investigation.

(4)

(b) After she had carried out her investigation Meryl conducted a Spearman's rank test on her data. She found a calculated value of 0.569.

Explain whether Meryl found a significant correlation for a two-tailed (non-directional) test at $p \leqslant 0.05$.

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

(2)

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(Total for Question 4 = 6 marks)

5 Sylvester has lost his job as a security guard at a shop due to his aggression. He had previously been verbally aggressive to customers, and in the latest incident kicked a customer after he had thrown them out of the shop.

Sylvester is currently single. His last relationship ended after he shouted at his partner. He has been banned from watching his local football team after he was involved in a fight with supporters of a rival team.

Discuss how brain functioning could account for Sylvester's aggression.

You must make reference to the context in your answer.

(8)

(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 (a) Describe what is meant by the 'role of the unconscious' according to Freud.

(2)

(b) Explain **one** strength and **one** weakness of Freud's psychosexual stages of development.

(4)

Strength

Weakness

(Total for Question 6 = 6 marks)

7 Sigourney conducted an observation to see if positive reinforcement led to children reading more at home. She used a random sampling technique to collect her participants from one village. Sigourney allocated the parents and children into one of two different conditions.

- Condition A: The parents praised the children every time they sat down and read silently.
- Condition B: The parents did not praise the children when they sat down and read silently.

She recorded parents and children interacting during their reading time at home for a week. Sigourney then watched the recordings at a later date.

(a) Describe how Sigourney could use a random sampling technique for her observation.

(2)

(b) Explain **one** strength of Sigourney using a random sampling technique.

(2)

(c) Explain **one** improvement Sigourney could make to her sample.

(2)

Sigourney also collected qualitative data. She wrote down what the parents said to their children when they praised them for reading. Sigourney did not collect any data from other sources.

(d) Explain **one** weakness of Sigourney using qualitative data for her observation.

(2)

(e) Explain **one** improvement Sigourney could make to how she collected her qualitative data.

(2)

(Total for Question 7 = 10 marks)

8 Patricia is scared of beards. Her new boss has a beard and it is affecting her ability to do her job. She has decided to try systematic desensitisation to reduce her fear of beards. Patricia goes to a local therapist.

(a) Describe how systematic desensitisation could be used with Patricia to reduce her fear of beards.

(4)

(b) Explain **one** weakness of using systematic desensitisation to treat Patricia's fear of beards.

(2)

(Total for Question 8 = 6 marks)

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

- Watson and Rayner (1920).

Describe the results of the classic study by Watson and Rayner (1920).

(Total for Question 9 = 4 marks)

10 Assess how far social learning theory explains human behaviour.

(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 Michelle is scared of fireworks due to the loud noise they make. She has attended several parties at her friend's house where they had fireworks. Michelle has now developed a fear of her friend's house. She has also developed a fear of going to her grandparents' house as they live in a similarly designed house to her friend.

Evaluate classical conditioning as an explanation of Michelle's fear.

You must make reference to the context in your answer.

(12)

(Total for Question 11 = 12 marks)

12 In your studies of biological psychology and learning theories and development you will have learned about the following studies in detail:

- Brendgen et al. (2005)
- Skinner (1948) Superstition in the pigeon.

Evaluate Brendgen et al. (2005) and Skinner (1948) in terms of ethical considerations and reliability.

(16)

(Total for Question 12 = 16 marks)

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

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