Write your name here

Surname	Other names

Pearson Edexcel
International Advanced Level

Centre Number | | | | | |

Candidate Number | | | | |

Psychology

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

Wednesday 26 October 2016 – Afternoon
Time: 2 hours

Paper Reference
WPS02/01

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.
- Check your answers if you have time at the end.

Turn over ▶

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P 5 0 7 2 1 A 0 1 2 8

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**
4	1.000	1.000	1.000	1.000	1.000
5	0.700	0.900	0.900	1.000	1.000
6	0.657	0.771	0.829	0.943	0.943
7	0.571	0.679	0.786	0.857	0.893
8	0.548	0.643	0.738	0.810	0.857
9	0.483	0.600	0.683	0.767	0.817
10	0.442	0.564	0.649	0.733	0.782
11	0.418	0.527	0.609	0.700	0.755
12	0.399	0.504	0.587	0.671	0.727
13	0.379	0.478	0.560	0.648	0.698
14	0.367	0.459	0.539	0.622	0.675
15	0.350	0.443	0.518	0.600	0.654
16	0.338	0.427	0.503	0.582	0.632
17	0.327	0.412	0.482	0.558	0.606
18	0.317	0.400	0.468	0.543	0.590
19	0.308	0.389	0.456	0.529	0.575
20	0.299	0.378	0.444	0.516	0.561
21	0.291	0.369	0.433	0.503	0.549
22	0.284	0.360	0.423	0.492	0.537
23	0.277	0.352	0.413	0.482	0.526
24	0.271	0.344	0.404	0.472	0.515
25	0.265	0.337	0.396	0.462	0.505
26	0.260	0.330	0.388	0.453	0.496
27	0.255	0.323	0.381	0.445	0.487
28	0.250	0.317	0.374	0.437	0.479
29	0.245	0.312	0.367	0.430	0.471
30	0.241	0.306	0.361	0.423	0.463

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 BEGINS ON THE NEXT PAGE.

SECTION A

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

1 Researchers investigated the performance of textile workers during their night shifts. The mean number of mistakes were calculated and recorded in relation to the number of consecutive nights worked. The results are shown in **Table 1** below.

Participant	Number of consecutive nights worked	Mean number of mistakes made
1	3	6
2	8	10
3	5	8
4	9	12
5	7	8
6	11	14
7	12	14
8	14	16

Table 1

(a) The researchers used the correlational research method.

Define what is meant by the correlational research method.

(1)

.....

.....

(b) Explain **one** strength of the correlational research method.

(2)

.....

.....

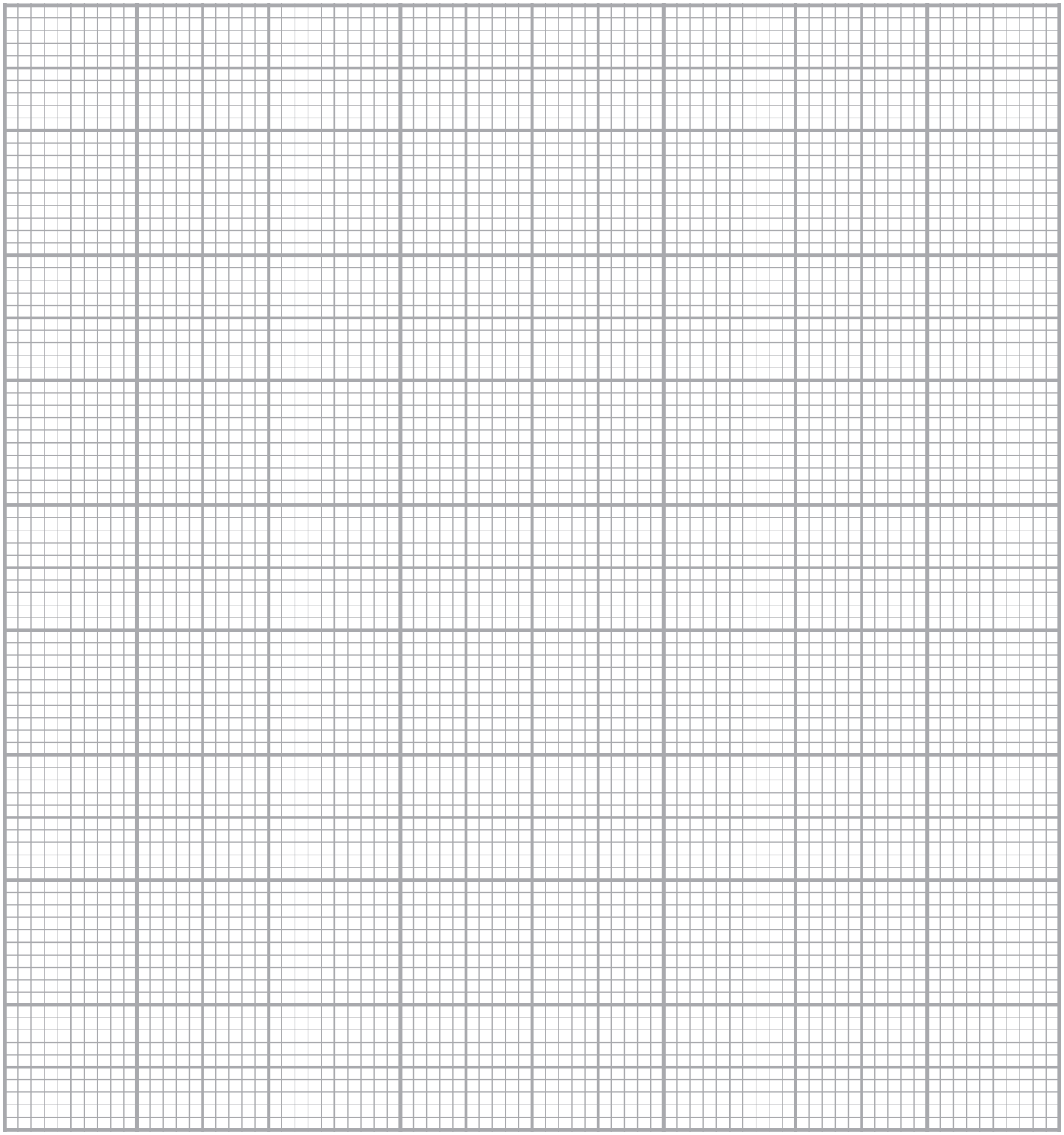
.....

.....

(c) Draw a scatter diagram to show the results from this research.

(3)

Title .....



(d) Describe the type of correlation shown in the scatter diagram you have drawn.

(2)

.....

.....

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.....

(e) State which statistical test you could use to determine whether there is a relationship between the number of consecutive nights worked and the mean number of mistakes made.

(1)

.....

.....

(Total for Question 1 = 9 marks)

2 In biological psychology you will have covered a contemporary study by Brendgen et al (2005).

(a) State **two** aims of the study by Brendgen et al (2005).

(2)

1 .....

.....

2 .....

.....

(b) Give **one** conclusion from the study by Brendgen et al (2005).

(1)

.....

.....

(c) Explain **two** strengths of the study by Brendgen et al (2005).

(4)

1 .....

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2 .....

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.....

(d) Suggest **one** way Brendgen et al (2005) could improve their study.

(2)

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.....

.....

(Total for Question 2 = 9 marks)

3 In biological psychology you will have conducted a practical investigation.

(a) State the fully operationalised hypothesis from your biological practical investigation.

(2)

(b) Explain **one** ethical issue you took into consideration when planning your biological practical investigation.

(2)

(c) Describe how you gathered the quantitative data in your biological practical investigation.

(4)

(Total for Question 3 = 8 marks)

4 Evaluate whether the role of neurotransmitters can fully explain human behaviour.

(8)

(Total for Question 4 = 8 marks)

TOTAL FOR SECTION A = 34 MARKS

SECTION B

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

5 Stuart is a four-year-old boy who enjoys spending time with his mother. His father decided to take him on a fishing trip. Stuart became afraid and said he did not want to go.

(a) Identify which Freudian psychosexual stage Stuart is in.

(1)

.....

(b) Explain, using Freudian theory, why Stuart became afraid.

(2)

.....

.....

.....

.....

(Total for Question 5 = 3 marks)

6 Shruthri was given a bag of sweets by her mother and told not to eat any before her dinner. Shruthri ate all the sweets.

(a) Explain, using Freudian theory, which part of Shruthri's personality was responsible for her behaviour.

(2)

(b) Explain, using Freudian theory, which part of Shruthri's personality should have stopped her eating all the sweets.

(2)

(c) Explain **one** weakness of Freud's psychosexual stages of development.

(2)

(Total for Question 6 = 6 marks)

7 Angela observed the behaviour of children aged two to five years in an early years setting in Canada. Each child was observed for five minutes and the number of times they played with each toy was recorded in **Table 2** below.

Boys	Number of times observed playing with cars	Number of times observed playing with dolls		Girls	Number of times observed playing with dolls	Number of times observed playing with cars
1	4	2		1	6	0
2	5	3		2	5	3
3	7	2		3	6	2
4	6	1		4	4	3
5	5	0		5	4	4

Table 2

(a) (i) Calculate the mean score for boys playing with cars using the results from **Table 2**.

(1)

Space provided for calculations

Mean score for **boys playing with cars** .....

(ii) Calculate the median score for girls playing with dolls using the results from **Table 2**.

(1)

Space provided for calculations

Median score for **girls playing with dolls** .....

(b) Explain **one** strength and **one** weakness of using the observational research method in this study.

(4)

Strength

Weakness

(c) Angela used a chi-squared test to analyse the data from her study.

Justify the use of a chi-squared test for this data.

(2)

(Total for Question 7 = 8 marks)

8 Define the following classical conditioning terms.

(a) Spontaneous recovery

(1)

(b) Extinction

(1)

(c) Stimulus generalisation

(1)

(d) Explain **two** strengths of classical conditioning as an explanation of learning.

(4)

1

2

(e) Describe how you would use classical conditioning to train a dog to sit.

(2)

.....

.....

.....

.....

(Total for Question 8 = 9 marks)

9 In learning theories and development, you will have covered a contemporary study by Capafóns et al (1998).

Evaluate the contemporary study by Capafóns et al (1998).

(8)

(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 Evaluate the role of internal pacemakers (body clock) and external zeitgebers in the regulation of the sleep-wake cycle.

(12)

(Total for Question 10 = 12 marks)

11 A newspaper has claimed that playing violent video games has influenced a rise in teenage aggression within society, specifically with boys over 12 years of age.

A team of psychologists has been asked to conduct research investigating whether playing violent video games increases aggression in teenagers.

Assess whether PET scans or observations would be the most appropriate research method for this investigation.

You must make reference to the context in your answer.

(16)

(Total for Question 11 = 16 marks)

TOTAL FOR SECTION C = 28 MARKS

TOTAL FOR PAPER = 96 MARKS