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Surname	Other names

Pearson Edexcel
International
Advanced Level

Centre Number | | | | | |

Candidate Number | | | | |

Psychology

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

Tuesday 16 January 2018 – 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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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 Describe the role of the neuron in human behaviour.

(Total for Question 1 = 3 marks)

2 Samadhi lives in Norway and she finds her sleep-wake cycle changes according to the season. During the winter months Samadhi goes to bed earlier and wakes up later compared to during the summer months.

(a) Describe the role of internal pacemakers on Samadhi's sleep-wake cycle.

(3)

(b) Explain **one** strength and **one** strength of the role of internal pacemakers on the sleep-wake cycle.

(4)

Strength

Weakness

(Total for Question 2 = 7 marks)

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3 Ulrick conducted an experiment to see whether aggression increased during puberty. He gathered a sample of 10-year-olds from a local school and a sample of 15-year-olds from a school in the neighbouring town.

Ulrick recorded the number of aggressive acts carried out by 10-year-olds and the number of aggressive acts carried out by 15-year-olds using a tally chart.

(a) Identify the experimental design used by Ulrick.

(1)

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(b) Define what is meant by the term 'nominal data' in relation to the data gathered by Ulrick.

(2)

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

Age in years	Average number of aggressive acts
10	3
15	4

Table 1

(c) Calculate the average number of aggressive acts carried out by 10-year-olds as a percentage of the total number of aggressive acts.

You **must** give your answer to **two** decimal places.

(1)

Space for calculations

Percentage .....

(d) Explain **one** conclusion about aggression that could be made from the data in **Table 1**.

(2)

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(Total for Question 3 = 6 marks)

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4 Beryl's menstrual cycle lasts, on average, 30 days. She finds that towards the end of her menstrual cycle she becomes more argumentative with her friends.

Describe the menstrual cycle in relation to Beryl.

(Total for Question 4 = 4 marks)

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5 During your course you will have learned about Brendgen et al.'s (2005) contemporary study.

(a) Describe the sample used by Brendgen et al. (2005) in their study.

(2)

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(b) Explain **one** strength and **one** weakness of Brendgen et al.'s (2005) study.

(4)

Strength

Weakness

(Total for Question 5 = 6 marks)

6 You will have carried out a practical investigation when studying biological psychology.

Evaluate your practical investigation from biological psychology.

(8)

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(Total for Question 6 = 8 marks)

TOTAL FOR SECTION A = 34 MARKS

GradeMax

SECTION B

LEARNING THEORIES AND DEVELOPMENT

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

7 Andrija wants to train his cat to come into the house when he calls its name. Andrija decides to use operant conditioning to train his cat.

(a) Describe how Andrija could use operant conditioning to train his cat to come into the house when he calls its name.

(4)

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Andrija decides to use operant conditioning to encourage his son, Alexi, to make his bed.

(b) Explain **one** weakness of Andrija using operant conditioning to encourage Alexi to make his bed.

(2)

(Total for Question 7 = 6 marks)

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8 Karolina has carried out an investigation to see if watching television programmes where people help each other, increased the helping behaviour of young children. She recorded the number of helping behaviours each child displayed before and after they had watched the television programmes.

Karolina's results are shown in **Table 2**.

Participant	Condition A Number of helping behaviours displayed before watching the television programmes	Condition B Number of helping behaviours displayed after watching the television programmes
one	3	5
two	9	4
three	0	2
four	2	6
five	4	6
six	2	3
seven	5	8
eight	1	3

Table 2

(a) Calculate the mean score for Condition B using the results from **Table 2**.

You **must** give your answer to **two** decimal places.

(1)

Space for calculations

Mean .....

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Karolina calculated the ranges for her results.

The ranges for Karolina's results are shown in **Table 3**.

Range for number of helping behaviours displayed before watching the television programmes	Range for number of helping behaviours displayed after watching the television programmes
9	6

Table 3

(b) Interpret the data shown in **Table 3**.

(2)

Karolina collected ordinal data in her investigation.

(c) Compare ordinal data and interval data.

(4)

(Total for Question 8 = 7 marks)

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9 Watson and Rayner (1920) used classical conditioning in their study on Little Albert.

(a) Identify the unconditioned stimulus (UCS) in Watson and Rayner's (1920) study.

(1)

(b) Explain **two** ethical weaknesses of Watson and Rayner's (1920) study.

(4)

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(c) Explain **one** improvement that could be made to the sample used in Watson and Rayner's (1920) study.

(2)

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(Total for Question 9 = 7 marks)

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10 Brigita is five years old. She has observed her mother applying make-up, and her father telling her mother how nice she looks.

Brigita finds her mother's make-up and puts it onto her own face.

(a) State **two** reasons why Brigita imitates her mother.

(2)

1 .....

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2 .....

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(b) Explain **one** strength and **one** weakness of social learning theory.

(4)

Strength

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Weakness

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(Total for Question 10 = 6 marks)

11 Lotte is a psychoanalyst. She has a new client, Olaf, who has come to her for psychoanalysis because he has problems working with his new manager, who is female.

Discuss how Lotte may use psychoanalysis to help Olaf with his problems working with his new manager.

You must refer to the context in your answer.

(8)

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(Total for Question 11 = 8 marks)

TOTAL FOR SECTION B = 34 MARKS

SECTION C

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

12 Evaluate research into infradian rhythms.

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(Total for Question 12 = 12 marks)

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13 Brianna and Finnian work in a hospital that specialises in helping people with mental health issues. A patient has recently been referred with a sleeping disorder. Brianna and Finnian cannot decide on the best method to use in order to understand the patient's sleeping disorder.

Brianna wants to use scanning techniques on the patient as she thinks the sleeping disorder could be biological. Finnian wants to use a case study method as used by Freud, as he thinks the sleeping disorder may be unconscious.

Assess whether Brianna and Finnian should use scanning techniques or a Freudian case study method with their patient.

You must refer to the context in your answer.

(16)

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(Total for Question 13 = 16 marks)

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

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