GradeMax

Please check the examination details below before entering your candidate information

Candidate surname	Other names

Pearson Edexcel
International Advanced Level

Centre Number | | | | | |

Candidate Number | | | | |

Thursday 14 May 2020

Afternoon (Time: 2 hours) | Paper Reference **WPS02/01**

Psychology

International Advanced Subsidiary
Paper 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.
- 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. Write your answers in the spaces provided.

1 (a) Name the area of the brain indicated in **Figure 1**.

(1)

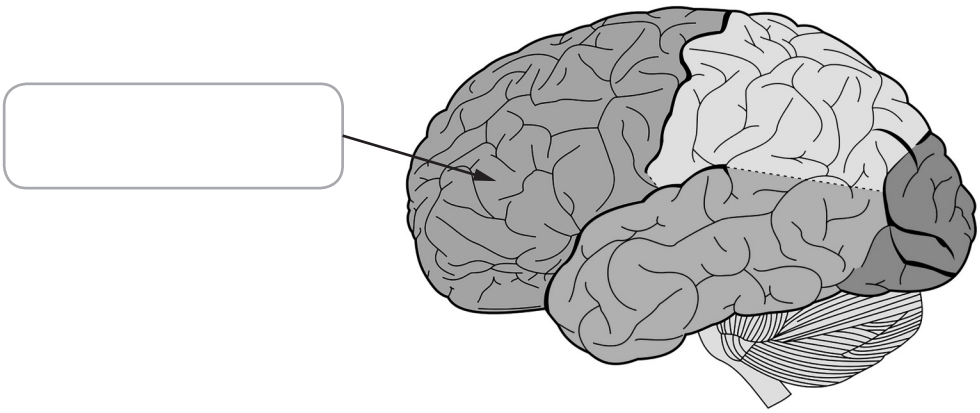


Figure 1

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

(2)

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(Total for Question 1 = 3 marks)

2 Kazuhito investigated the effects of caffeine on participants' brain activity. He used an fMRI scan to measure the same participants' brain activity on two different days.

On day one participants did not drink any caffeinated coffee before their fMRI scan. On day two the participants drank three cups of caffeinated coffee before their fMRI scan.

(a) State a fully operationalised non-directional (two-tailed) experimental hypothesis for the investigation carried out by Kazuhito.

(2)

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(b) Explain **one** strength and **one** weakness of Kazuhito using an fMRI scan in his investigation.

(4)

Strength

Weakness

Kazuhito also asked the participants to rate how alert they felt each day on a scale of 1 to 7, with 1 being a score of not alert and 7 being a score of highly alert. He carried out a Wilcoxon signed ranks test on his data where N=11 and found a calculated value of 12.

(c) Justify, using a two-tailed test at $p \leq 0.05$, whether Kazuhito found a significant difference in his investigation.

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

(2)

(Total for Question 2 = 8 marks)

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3 In biological psychology you will have learned about one of the following contemporary studies in detail.

- McDermott (2008).
- Hoefelmann et al. (2006).

Chosen study

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(a) Describe the results and/or conclusion(s) of your chosen contemporary study.

(4)

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(b) Explain **one** strength and **one** weakness of your chosen contemporary study.

(4)

Strength

Weakness

(Total for Question 3 = 8 marks)

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4 Xavi carried out an experiment to investigate whether the number of siblings (brothers and sisters) affected aggression. He gathered a stratified sample from a local business and split the participants into two conditions.

- Condition A: participants with one sibling.
- Condition B: participants with two or more siblings.

(a) Describe how Xavi may have gathered his stratified sample.

(3)

(b) Explain **one** improvement Xavi could make to his sample of participants.

(2)

Xavi calculated the mean and median number of aggressive acts for Condition A. His results are shown in **Table 1**.

	Mean number of aggressive acts in a month	Median number of aggressive acts in a month
Condition A: participants with one sibling	5.4	3.2

Table 1

Xavi did not have a normal distribution of results.

(c) State, using the data in **Table 1**, how Xavi knew he did not have a normal distribution of results for Condition A.

(1)

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The results from Xavi's experiment for Condition B are shown in **Table 2**.

Participant	Number of aggressive acts in a month
A	5
B	7
C	3
D	5
E	3
F	4
G	7
H	1
I	5
Mode =	

Table 2

(d) Calculate the mode for Condition B and complete **Table 2** with your answer.

(1)

Space for calculations

(Total for Question 4 = 7 marks)

5 Julianne is a manager at a factory. She is responsible for introducing night work at the factory.

Julianne wants to make it as easy as possible for the employees to adjust their sleep-wake cycle to working at night. She has carried out some research and found that lighting levels, shift patterns and eating habits all have an effect on how people adjust to working during the night.

Discuss how Julianne could use this information about the sleep-wake cycle to help the employees adjust to working during the night.

You must refer to the context in your answer.

(8)

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(Total for Question 5 = 8 marks)

TOTAL FOR SECTION A = 34 MARKS

SECTION B

LEARNING THEORIES AND DEVELOPMENT.

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

6 Stijn is seven months old. His parents have bought him a new toy which he likes to put in his mouth. His sister, Lieke, is four years old. She does not like spending time with her mother and says she does not like Stijn.

(a) Identify which psychosexual stage of development Stijn is in according to Freud.

(1)

(b) Describe, using Freud's psychosexual stages, the behaviour Lieke may show.

(4)

(Total for Question 6 = 5 marks)

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7 Nika conducted an observation with children during their first year at school. She observed the children's interactions at school with each other and with their teachers.

Nika collected qualitative data during her observation.

(a) Describe how Nika may have recorded the qualitative data she collected during her observation.

(2)

(b) Describe how Nika could ensure her observation was reliable.

(2)

Nika decided to turn her qualitative data into quantitative data.

(c) Describe how Nika could have converted her qualitative data into quantitative data.

(3)

(Total for Question 7 = 7 marks)

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8 In learning theories and development you will have learned about Skinner's (1948) Superstition in the pigeon study.

(a) Describe the procedure of Skinner (1948) Superstition in the pigeon.

(4)

(b) Explain **one** strength and **one** weakness of Skinner (1948) Superstition in the pigeon, in terms of ethical considerations.

(4)

Strength

Weakness

(Total for Question 8 = 8 marks)

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9 (a) Explain **two** strengths of generalising the results and/or conclusions from animal experiments to humans.

(4)

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(b) Justify why animal experiments could be considered more reliable than human experiments.

(2)

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(Total for Question 9 = 6 marks)

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10 Assess the usefulness of classical conditioning as an explanation of human behaviour.

(8)

(Total for Question 10 = 8 marks)

TOTAL FOR SECTION B = 34 MARKS

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Section C

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

11 Evaluate research into the circadian sleep-wake cycle.

(12)

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(Total for Question 11 = 12 marks)

12 Alejandro and Katerina work at a local sleep clinic.

A patient who has depression has recently come to the clinic. The patient is constantly tired, finds it hard to get out of bed and lacks the motivation to carry out everyday activities. The patient is also having difficulties with personal relationships.

When assessing the patient, it was found that these symptoms had developed over the winter months. The patient also stated they had experienced a troubled childhood, and felt they were not loved by their parents.

Alejandro thinks light therapy should be used to treat the patient, whilst Katerina thinks that psychoanalysis would be more effective.

To what extent would light therapy and psychoanalysis be effective treatments for Alejandro's and Katerina's patient?

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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