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 17 October 2019

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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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**
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.

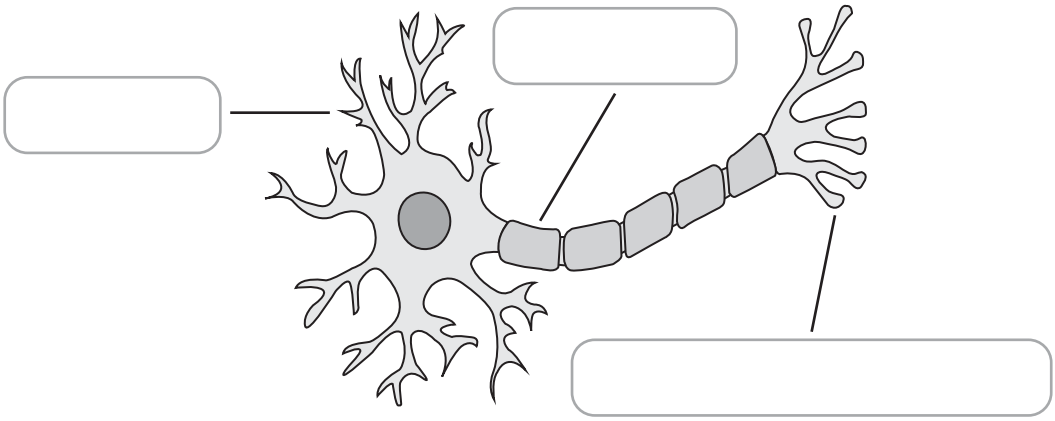
SECTION A

BIOLOGICAL PSYCHOLOGY

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

1 Name the parts of the neuron indicated in the diagram below.

(3)



(Total for Question 1 = 3 marks)

2 Tobias conducted an investigation into the effects of hormones on aggression in rats. He had two groups of rats that he used in his experiment.

- Condition A – Rats injected with testosterone
- Condition B – Rats not injected with testosterone

Tobias then put each rat individually into a cage with another, non-experimental, rat and noted down how many times the rats from Condition A and Condition B attacked the non-experimental rat.

(a) State the independent variable (IV) of the investigation carried out by Tobias.

(1)

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(b) Tobias used an independent groups design.

Explain **one** reason why Tobias used an independent groups design in his investigation.

(2)

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(c) The results for the number of times the experimental rat attacked the other rat in Condition A are shown in **Table 1**.

Rat	Condition A Injected with testosterone	$(x - \bar{x})$	$(x - \bar{x})^2$
A	5	0	
B	3	-2	
C	7	2	
D	4	-1	
E	6	1	
Mean number of attacks	5	Sum of differences^2	
Standard deviation = ...			

Table 1

Calculate the standard deviation to two decimal places for the data gathered by Tobias by completing **Table 1**.

You must show your calculations.

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

(4)

Space for calculations

(d) Tobias repeated his investigation with a larger sample of rats. He found that his results for Condition B formed a skewed distribution.

Describe what a skewed distribution means in relation to Tobias' investigation.

(2)

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(Total for Question 2 = 9 marks)

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

- Brendgen et al. (2005) Examining genetic and environmental influences on social aggression: A study of 6-year-old twins.

(a) Describe the results of the contemporary study by Brendgen et al. (2005).

(2)

(b) Explain **one** strength and **one** weakness of the contemporary study carried out by Brendgen et al. (2005).

(4)

Strength

Weakness

(Total for Question 3 = 6 marks)

4 Petal was recently in an accident and had a head injury. A brain scan showed that her limbic system had been damaged. Since the accident Petal has become more aggressive and argues with her family.

During an argument, she hit her younger brother and was punished by her parents. Petal has also been told to leave the local youth club for throwing a cup at another child.

(a) Describe how damage to the limbic system may cause the increase in aggression shown by Petal.

(4)

(b) Explain **one** strength and **one** weakness of damage to the limbic system as an explanation of Petal's aggression.

(4)

Strength

Weakness

(Total for Question 4 = 8 marks)

5 Doris has just started a new job that involves shift work. For two shifts, Doris works during the day, from 8am to 4pm. For the next two shifts, she works during the night, from 10pm to 6am.

Doris finds it hard to sleep when she gets home from working the night shifts.

Discuss, using the role of internal pacemakers, why Doris finds it hard to sleep when she gets home after the night shifts.

You **must** refer to the context in your answer.

(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 In your studies of learning theories and development, you will have learned about classical conditioning.

(a) Describe what is meant by the term 'stimulus generalisation' as used in classical conditioning.

(2)

(b) Describe what is meant by the term 'extinction' as used in classical conditioning.

(2)

(Total for Question 6 = 4 marks)

7 Aisar conducted an investigation on the number of books girls read compared to the number of books boys read. Aisar had a sample of 100 boys and 99 girls, and he recorded how many books they read over a month.

He found that the total number of books read by the 99 girls was 359.

(a) Estimate the mean number of books read by the girls over a month.

(1)

Mean estimate of books read by girls over a month .....

(b) The mode for the number of books read by girls and by boys is shown in **Table 2**.

	Mode for the number of books read in a month
Girls	5
Boys	3

Table 2

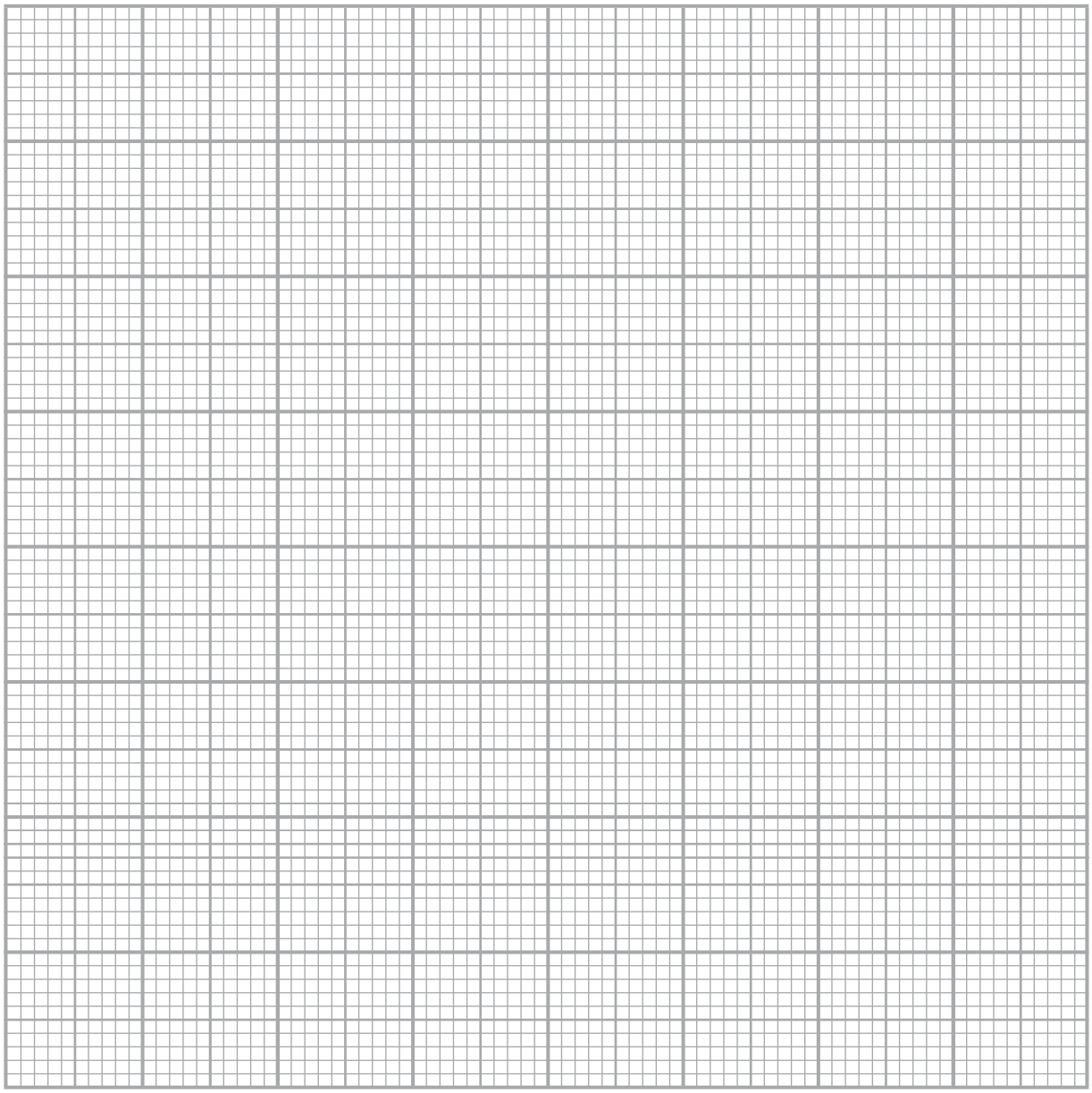
Draw an appropriate graph for the data in **Table 2**.

(3)

Title

.....

.....



(Total for Question 7 = 4 marks)

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8 Katya has two children, Anya who is 11 months old and Gregor who is 2 years old.

Anya is putting objects in her mouth. Katya is finding it difficult to cope with Gregor as he frequently has tantrums, and does not tidy up his toys.

(a) Describe Freud's psychosexual stages of development in relation to the behaviour of Anya and Gregor.

(4)

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

(4)

Strength

Weakness

(Total for Question 8 = 8 marks)

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

- Watson and Rayner (1920) Little Albert: Conditioned emotional reactions.

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

(2)

(b) Explain **two** strengths of the classic study carried out by Watson and Rayner (1920).

(4)

1

2

(Total for Question 9 = 6 marks)

10 Phillipe is a psychoanalyst. He has a client that he is treating for anxiety. The client has told him about a dream where he is scratched by a cat. Phillipe interpreted the dream in relation to the client's relationship with his wife.

Explain **one** strength and **one** weakness of Phillipe using dream analysis to treat his client.

(4)

Strength

Weakness

(Total for Question 10 = 4 marks)

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11 Assess social learning theory as a complete explanation of human behaviour.

(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 Rosa has been diagnosed with seasonal affective disorder. She struggles to get up for work in the winter, and finds she spends most of her weekends in bed. In the winter Rosa does not go out as much with her friends as she does in other seasons.

Rosa also finds that she gains weight over the winter, as she eats a lot more food, and does not take her dog for walks as often as she does during the summer.

Evaluate the role of bodily rhythms in explaining Rosa's seasonal affective disorder.

(12)

(Total for Question 12 = 12 marks)

13 Evaluate the use of fMRI scans and the observational research method to research human behaviour.

(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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