

Please check the examination details below before entering your candidate information

Candidate surname <i>StemUp Model Solution</i>		Other names											
Pearson Edexcel Level 3 GCE		Centre Number <table border="1"><tr><td></td><td></td><td></td><td></td><td></td></tr></table>						Candidate Number <table border="1"><tr><td></td><td></td><td></td><td></td><td></td></tr></table>					
Monday 20 May 2019													
Afternoon (Time: 2 hours)		Paper Reference 9PS0/01											
Psychology Advanced Paper 1: Foundations in Psychology													
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 90.
- 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.



Chi-squared distribution formula

$$X^2 = \sum \frac{(O-E)^2}{E}$$

$$df = (r - 1)(c - 1)$$

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.



Mann-Whitney U test formulae

$$U_a = n_a n_b + \frac{n_a(n_a+1)}{2} - \sum R_a$$

$$U_b = n_a n_b + \frac{n_b(n_b+1)}{2} - \sum R_b$$

(U is the smaller of U_a and U_b)

Critical values for the Mann-Whitney U test

N_a	N_b															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
$p \leq 0.05$ (one-tailed), $p \leq 0.10$ (two-tailed)																
5	4	5	6	8	9	11	12	13	15	16	18	19	20	22	23	25
6	5	7	8	10	12	14	16	17	19	21	23	25	26	28	30	32
7	6	8	11	13	15	17	19	21	24	26	28	30	33	35	37	39
8	8	10	13	15	18	20	23	26	28	31	33	36	39	41	44	47
9	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54
10	11	14	17	20	24	27	31	34	37	41	44	48	51	55	58	62
11	12	16	19	23	27	31	34	38	42	46	50	54	57	61	65	69
12	13	17	21	26	30	34	38	42	47	51	55	60	64	68	72	77
13	15	19	24	28	33	37	42	47	51	56	61	65	70	75	80	84
14	16	21	26	31	36	41	46	51	56	61	66	71	77	82	87	92
15	18	23	28	33	39	44	50	55	61	66	72	77	83	88	94	100
16	19	25	30	36	42	48	54	60	65	71	77	83	89	95	101	107
17	20	26	33	39	45	51	57	64	70	77	83	89	96	102	109	115
18	22	28	35	41	48	55	61	68	75	82	88	95	102	109	116	123
19	23	30	37	44	51	58	65	72	80	87	94	101	109	116	123	130
20	25	32	39	47	54	62	69	77	84	92	100	107	115	123	130	138



N_a	N_b															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
$p \leq 0.01$ (one-tailed), $p \leq 0.02$ (two-tailed)																
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
6	2	3	4	6	7	8	9	11	12	13	15	16	18	19	20	22
7	3	4	6	7	9	11	12	14	16	17	19	21	23	24	26	28
8	4	6	7	9	11	13	15	17	20	22	24	26	28	30	32	34
9	5	7	9	11	14	16	18	21	23	26	28	31	33	36	38	40
10	6	8	11	13	16	19	22	24	27	30	33	36	38	41	44	47
11	7	9	12	15	18	22	25	28	31	34	37	41	44	47	50	53
12	8	11	14	17	21	24	28	31	35	38	42	46	49	53	56	60
13	9	12	16	20	23	27	31	35	39	43	47	51	55	59	63	67
14	10	13	17	22	26	30	34	38	43	47	51	56	60	65	69	73
15	11	15	19	24	28	33	37	42	47	51	56	61	66	70	75	80
16	12	16	21	26	31	36	41	46	51	56	61	66	71	76	82	87
17	13	18	23	28	33	38	44	49	55	60	66	71	77	82	88	93
18	14	19	24	30	36	41	47	53	59	65	70	76	82	88	94	100
19	15	20	26	32	38	44	50	56	63	69	75	82	88	94	101	107
20	16	22	28	34	40	47	53	60	67	73	80	87	93	100	107	114

N_a	N_b															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
$p \leq 0.025$ (one-tailed), $p \leq 0.05$ (two-tailed)																
5	2	3	5	6	7	8	9	11	12	13	14	15	17	18	19	20
6	3	5	6	8	10	11	13	14	16	17	19	21	22	24	25	27
7	5	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34
8	6	8	10	13	15	17	19	22	24	26	29	31	34	36	38	41
9	7	10	12	15	17	20	23	26	28	31	34	37	39	42	45	48
10	8	11	14	17	20	23	26	29	33	36	39	42	45	48	52	55
11	9	13	16	19	23	26	30	33	37	40	44	47	51	55	58	62
12	11	14	18	22	26	29	33	37	41	45	49	53	57	61	65	69
13	12	16	20	24	28	33	37	41	45	50	54	59	63	67	72	76
14	13	17	22	26	31	36	40	45	50	55	59	64	67	74	78	83
15	14	19	24	29	34	39	44	49	54	59	64	70	75	80	85	90
16	15	21	26	31	37	42	47	53	59	64	70	75	81	86	92	98
17	17	22	28	34	39	45	51	57	63	67	75	81	87	93	99	105
18	18	24	30	36	42	48	55	61	67	74	80	86	93	99	106	112
19	19	25	32	38	45	52	58	65	72	78	85	92	99	106	113	119
20	20	27	34	41	48	55	62	69	76	83	90	98	105	112	119	127



N_a	N_b															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
$p \leq 0.005$ (one-tailed), $p \leq 0.01$ (two-tailed)																
5	0	1	1	2	3	4	5	6	7	7	8	9	10	11	12	13
6	1	2	3	4	5	6	7	9	10	11	12	13	15	16	17	18
7	1	3	4	6	7	9	10	12	13	15	16	18	19	21	22	24
8	2	4	6	7	9	11	13	15	17	18	20	22	24	26	28	30
9	3	5	7	9	11	13	16	18	20	22	24	27	29	31	33	36
10	4	6	9	11	13	16	18	21	24	26	29	31	34	37	39	42
11	5	7	10	13	16	18	21	24	27	30	33	36	39	42	45	48
12	6	9	12	15	18	21	24	27	31	34	37	41	44	47	51	54
13	7	10	13	17	20	24	27	31	34	38	42	45	49	53	56	60
14	7	11	15	18	22	26	30	34	38	42	46	50	54	58	63	67
15	8	12	16	20	24	29	33	37	42	46	51	55	60	64	69	73
16	9	13	18	22	27	31	36	41	45	50	55	60	65	70	74	79
17	10	15	19	24	29	34	39	44	49	54	60	65	70	75	81	86
18	11	16	21	26	31	37	42	47	53	58	64	70	75	81	87	92
19	12	17	22	28	33	39	45	51	56	63	69	74	81	87	93	99
20	13	18	24	30	36	42	48	54	60	67	73	79	86	92	99	105

The calculated value must be equal to or less than 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

<i>n</i>	Level of significance for a one-tailed test		
	0.05	0.025	0.01
	Level of significance for a two-tailed test		
	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.



Answer ALL questions.

SECTION A: SOCIAL PSYCHOLOGY

- 1 Fuchsia was interested to see whether location affected prejudice. She is planning to visit three towns in her area and ask participants questions to judge how prejudiced they are.

(a) Describe how Fuchsia could recruit her participants using a volunteer sampling technique.

(2)

Fuchsia could put an advertisement in the local newspaper (or on a community noticeboard) in each of the three towns asking for people to take part in a study about their views. The advert would give a time, date and place for participants to turn up and answer her questions about prejudice, so the sample would be made up of people who volunteer themselves.

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(b) Fuchsia intends to use thematic analysis to analyse her data.

Explain **one** strength and **one** weakness of Fuchsia using thematic analysis to analyse her data.

(4)

Strength

Thematic analysis will allow Fuchsia to summarise her large amount of qualitative data about prejudice in a manageable way, by coding answers into themes. This means the key features of the prejudiced attitudes in each town can be highlighted simply, so others such as policymakers can easily interpret her findings.

Weakness

Fuchsia's analysis of the answers to her prejudice questions may be biased and subjective, because she is the only person analysing the data. She may be selective about which themes she reports, e.g. looking for prejudice that fits her expectations about location, which reduces the validity and reliability of her conclusions.



- (c) Fuchsia has drafted some open-ended questions that she plans to use, which are shown in **Figure 1**.

My prejudice questions

1. *If someone called you a racist, what would you say?*
2. *What do you think about people different to yourself?*
3. *Research has indicated that people who have social dominance orientation and right-wing authoritarianism may be more prejudiced than people who score higher in openness, and agreeableness. What do you think about this?*

Figure 1

Explain **one** improvement Fuchsia could make to the questions she has drafted shown in **Figure 1**.

(2)

Fuchsia could shorten and simplify the third question, as it is very long and participants may not understand technical terms like 'social dominance orientation' and 'right-wing authoritarianism'. Using less technical terms that participants can understand would improve the validity of their answers about prejudice, as they would be responding to what the question actually means.

(Total for Question 1 = 8 marks)



2 Evaluate social impact theory as an explanation of obedience.

(8)

Social impact theory (Latané, 1981) proposes that the amount of social influence, such as obedience, a target individual experiences depends on three factors: the strength, immediacy and number of the sources acting on them. Strength refers to the status or power of the source, so obedience should be greater when the source is high status, such as a police officer, and has a close relationship with the target. Immediacy refers to how close the source is in space or time, so obedience is greater when the source is physically present with fewer or no barriers between them and the target. Number refers to how many sources there are, so obedience increases with more people affecting the target, although the proportional impact of each extra source lessens as the total number increases (the psychosocial law).

There is research support for the factors. Bassett and Latané (1976) found that participants assigned more newspaper column inches to fictitious events that happened nearby than to faraway events, supporting immediacy as a factor in social impact.

Milgram, Bickman and Berkowitz (1969) found that more passers-by stopped and craned their necks to gawk at a sixth floor window as the number of confederates looking up increased, showing that number of sources affects social influence. Milgram's own variations also support immediacy, as obedience fell from 65% to 40% when the learner was in the same room.

However, social impact theory does not attempt to explain why someone obeys; it simply outlines the factors involved, so agency theory may be needed to explain the shift into an agentic state. The theory also ignores personality factors, such as the authoritarian personality (Adorno et al, 1950), which has been linked to higher levels of obedience, and it sees the target as passive, so it cannot explain why some people defy authority even when strength, immediacy and number are high.



In conclusion, social impact theory is a useful and testable description of the situational factors that predict obedience and is supported by research, but it is not a complete explanation as it does not explain why people obey or account for individual differences.

(Total for Question 2 = 8 marks)

TOTAL FOR SECTION A = 16 MARKS



SECTION B: COGNITIVE PSYCHOLOGY

- 3** Tulving (1972) proposed an explanation of long-term memory.

Describe what Tulving (1972) meant by 'semantic memory'.

(2)

Semantic memory is a type of long-term declarative memory that stores facts, meanings and general knowledge about the world, like a 'mental encyclopaedia' of information. It is not tied to when or where the knowledge was learned, unlike episodic memory, e.g. knowing that Paris is the capital of France.

(Total for Question 3 = 2 marks)



4 During your course you will have learned about the classic study by Baddeley (1966b).

(a) State **two** findings of Baddeley (1966b).

(2)

Finding one

In experiment III, acoustically similar word lists tended to be harder to learn than the control list during early learning trials, i.e. from short-term memory.

Finding two

On the surprise retest after 20 minutes, the semantically similar list was recalled more poorly than the control list, suggesting LTM is mainly semantically coded.



(b) Explain **two** weaknesses of Baddeley (1966b).

(4)

Weakness one

Baddeley (1966b) used lists of words to assess memory through recall of the correct sequence, which lacks task validity. People usually remember conversations, events or telephone numbers rather than word lists, so the findings may not represent real-life memory.

Weakness two

The study took place in a laboratory where words were read out or shown to participants, a controlled and artificial situation, so it lacks ecological validity. Participants may have changed their behaviour, e.g. tried harder to learn the words than in their daily use of memory, so the results may not generalise.

(Total for Question 4 = 6 marks)



- 5 Cognitive psychology has been used to explain key questions of relevance to today's society.

Discuss the key question for society you have studied using concepts, theories and/or research from cognitive psychology.

(8)

Key question

Key question: How reliable is eyewitness testimony?

Eyewitness testimony (EWT) is often the main evidence used to convict suspects, so if it is unreliable, innocent people can go to prison while the real offender remains free.

The Innocence Project (2015) found that 72% of wrongful convictions overturned by DNA evidence were partly or wholly due to eyewitness misidentification, showing it is a key issue for society. If innocent people are repeatedly sent to jail, society will lose

trust in the criminal justice system and crimes may go unreported. For example, Ronald Cotton was misidentified by Jennifer Thompson-Cannino and spent more than 10 years in prison for rape, which could have been avoided with reliable eyewitness procedures.

Reconstructive memory theory (Bartlett, 1932) explains why EWT can be unreliable.

Memory is not a perfect recording but is actively reconstructed each time it is recalled, so eyewitnesses fill in gaps in their recall with information from their schemas, e.g. a

schema of what a 'typical' criminal looks like. Bartlett's War of the Ghosts study

showed that recall became shorter and more conventional to fit participants' culture, so a witness may unknowingly change the details of a crime.

Misinformation can also be given to witnesses in the form of leading questions from police or lawyers, which can be incorporated into the memory of the crime, leading to inaccurate testimony.

The multi-store model (Atkinson and Shiffrin, 1968) suggests that if an eyewitness does not pay attention to the crime, e.g. because it happened quickly or they were focused on a weapon, the information will not pass from the sensory register to STM,



and if it is not rehearsed it will not reach LTM, so their testimony may be inaccurate.

Peterson and Peterson (1959) showed that rehearsal was important for retaining trigrams, as recall fell sharply within 18 seconds when rehearsal was prevented, so if eyewitnesses rehearse events soon after the crime, e.g. by giving a statement quickly, they may give a more accurate account.

Therefore cognitive psychology suggests EWT is often unreliable, and this knowledge can be used to improve police procedures, such as avoiding leading questions, so that fewer innocent people like Ronald Cotton are convicted.

(Total for Question 5 = 8 marks)

TOTAL FOR SECTION B = 16 MARKS



SECTION C: BIOLOGICAL PSYCHOLOGY

- 6 Charles is 14 years old and has been displaying aggressive behaviour.

Recently he has shouted insults at other students and broken classroom equipment in his science lessons. Charles has also been in a fight with the football captain after Charles let in an important goal during the last match of the season.

Describe how hormones could account for Charles's behaviour.

(3)

Charles may have an imbalance in his testosterone to cortisol (T/CRT) ratio, with high testosterone and low cortisol, which could have contributed to him being aggressive when shouting insults at other students in his science lessons.

As a 14-year-old boy going through puberty, Charles is likely to have a surge in testosterone, and he may also have been exposed to more testosterone in the womb, which could have led to him breaking classroom equipment.

Letting in an important goal would cause stress, but his cortisol levels may not have increased enough to inhibit his aggression, so he got into a fight with the football captain.

(Total for Question 6 = 3 marks)

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7 As part of your psychology course, you were required to carry out a practical investigation when studying biological psychology.

- (a) State the research hypothesis for your practical investigation in biological psychology.

(2)

There will be a negative correlation between a participant's age in years and how lenient their attitude to recreational drug use is, measured by their score on a questionnaire rating scale out of 10 (where 10 = very lenient).

- (b) As part of your practical investigation when studying biological psychology, you were required to carry out a statistical test.

Describe the results of the statistical test you carried out for your practical investigation in biological psychology.

(2)

My Spearman's rho value was -0.79 , which shows a strong negative correlation because it is close to -1 . This means that as age increased, lenient attitudes to drug use decreased. The value was greater than the critical value of 0.564 ($N = 10$, $p \leq 0.05$, one-tailed), so the result was significant and I accepted my hypothesis.



- (c) Explain **one** strength of the practical investigation you carried out when studying biological psychology.

(2)

My correlational study into age and attitudes to drug use was controlled by using the same standardised questionnaire and rating scale for every participant, so it can be tested for reliability, because I or others could replicate the study several times to check for consistency in the results about age and attitudes to drug use.

- (d) Explain **one** improvement you could make to the practical investigation you carried out when studying biological psychology.

(2)

I could have added open-ended questions so that participants could explain their attitudes towards using drugs, rather than just giving a rating. This would have increased validity by gaining more in-depth qualitative data about why they held their beliefs about drug use, instead of forcing them into a number on a scale.

(Total for Question 7 = 8 marks)



8 During the course you will have learned about the classic study by Raine et al. (1997).

Evaluate the classic study by Raine et al. (1997).

(8)

Raine et al (1997) investigated whether murderers who pleaded not guilty by reason of insanity (NGRI) have brain abnormalities. They examined the brains of 41 NGRIs (39 men and 2 women) and compared them to 41 controls who were matched for sex and age, and the participants were kept free of medication for two weeks before the study. A PET scan was used to measure brain activity (glucose metabolism) after participants were injected with a tracer and completed a continuous performance task. They found that the NGRIs had less activity in their prefrontal and parietal brain regions than the controls, and abnormal asymmetries in the amygdala, thalamus and medial temporal lobe, with lower activity on the left and higher on the right.

A strength is the sample. Murderers pleading NGRI are a unique and rare population, and a large number of this select group was used, which increases the generalisability of the findings to other NGRI murderers. The controls of sex, age and medication also mean that the study could compare the groups reliably with few extraneous variables, and the use of a standardised PET procedure and continuous performance task means it can be replicated, increasing reliability.

However, the PET scans of murderers took place in an artificial setting while they completed a laboratory task, so their brain activity may have been different from when they committed their crime in real life, so the study lacks ecological validity. The findings are also correlational, so we cannot say that the brain differences caused the violence; Raine et al themselves stressed that the results do not show that violence is determined by biology alone, as social and psychological factors are also involved.

In addition, the findings could be used to screen the population and identify individuals who match the NGRI brain activity, which is a socially sensitive issue, as people could



be labelled as potential murderers, and the findings could be misused to excuse responsibility in court.

Overall, Raine et al (1997) is a well-controlled, scientific study that provides useful evidence of a link between brain dysfunction and violence, but its low ecological validity and correlational nature mean it cannot show that brain abnormalities alone cause murder.

(Total for Question 8 = 8 marks)

TOTAL FOR SECTION C = 19 MARKS



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SECTION D BEGINS ON THE NEXT PAGE.



SECTION D: LEARNING THEORIES

- 9 Malik carried out an observation in a local cinema to investigate which films males and females watch. Malik stood near two screen entrances where he could not be seen and tallied whether males and females entered the screen to watch either a horror film or a comedy film.

(a) Identify the type of observation that Malik used in this study.

(1)

Covert (non-participant naturalistic) observation.

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(b) **Table 1** shows the number of males and females who watched either a horror film or a comedy film at the local cinema.

	Comedy Film	Horror Film
Males	### ### //	###
Females	### //	### ###

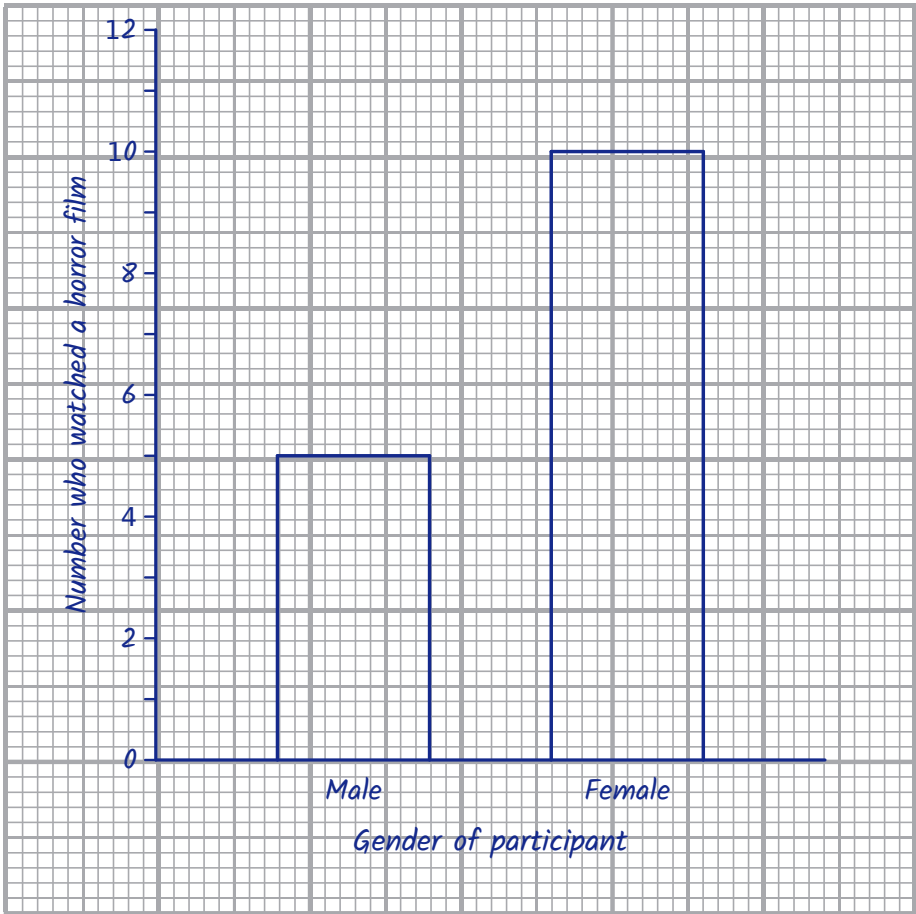
Table 1

Using the data from **Table 1**, draw a bar chart to represent the number of males and females who watched a horror film.

(3)

Title

A bar chart to show the number of males and females who watched a horror film in a local cinema



- (c) Complete **Table 2** to calculate the chi-squared test for Malik's study to **two** decimal places.

(4)

		Observed	Expected	O-E	(O-E) ²	(O-E) ² / E
Males	Comedy Films	12	9.5	2.5	6.25	0.66
	Horror Films	5	7.5	-2.5	6.25	0.83
Females	Comedy Films	7	9.5	-2.5	6.25	0.66
	Horror Films	10	7.5	2.5	6.25	0.83
Chi-squared =						2.98

Table 2

SPACE FOR CALCULATIONS

$$(O - E)^2/E: 6.25 \div 9.5 = 0.658 \text{ (0.66)} \quad 6.25 \div 7.5 = 0.833 \text{ (0.83)}$$

$$X^2 = \Sigma(O - E)^2/E = 0.658 + 0.833 + 0.658 + 0.833$$

$$= 2.982 = 2.98 \text{ (2 d.p.)}$$

Chi-squared (X^2) 2.98

- (d) Malik had a two-tailed (non-directional) hypothesis with $df = 1$ and used $p=0.05$ as his level of significance.

Determine whether there is a significant difference between male and female film choice.

(1)

There is no significant difference between male and female film choice, because the calculated value (2.98) is less than the critical value (3.84) for a two-tailed test at $p = 0.05$ with $df = 1$.



(e) Malik used quantitative data for his study into film choice at the local cinema.

Explain **one** weakness of using quantitative data for Malik's study.

(2)

Collecting quantitative tally data about film choice may lack validity in terms of why someone went to see that film. Malik will not know the underlying reasons why participants chose a horror or comedy film, e.g. they may have been taken by a partner or friend, so he cannot be sure it was their personal choice of film type.

(Total for Question 9 = 11 marks)



- 10 Tom has a daughter called Holly who is 18 months old. Tom is trying to teach Holly how to use a fork by demonstrating to her how he holds it. He also shows Holly how to use the fork to pick up food and says "well done" to her every time she uses the fork correctly. Holly smiles and laughs each time she picks up some food with the fork.

Discuss how social learning theory could account for Holly using a fork on her own. You must make reference to the context in your answer.

(8)

Social learning theory (Bandura) proposes that behaviour is learned by observing and imitating a role model. Holly is likely to see her father Tom as a role model, because he is a familiar, high-status and nurturing figure to an 18-month-old child, so she will want to imitate his behaviour with the fork.

For imitation to happen, four mediational processes are needed. Attention is the process of noticing and being interested in the behaviour; Holly will notice and be interested in how Tom holds the fork when he demonstrates it, and how he stabs the food with it.

Retention involves storing a mental representation of the behaviour in memory, so Holly must remember how her father held the fork and the movement he used to pick up food. Reproduction requires the physical ability to perform the behaviour; at 18 months Holly is developing the fine motor skills to grip a fork, so she is able to copy Tom, although she may not manage it perfectly at first.

Motivation is the final process, and it is affected by reinforcement. If an individual is rewarded, they are more likely to reproduce the learned behaviour and continue displaying it in future. Tom saying "well done" to Holly every time she uses the fork correctly is direct reinforcement (a social reward), which will encourage Holly to use her fork again on her own. Holly may also have observed Tom being rewarded for eating with a fork, e.g. by enjoying his food, which is vicarious reinforcement.

The learned behaviour may also make Holly feel proud or good internally, which serves as self-reinforcement. Holly smiles and laughs each time she picks up food with the fork correctly, which shows she is pleased with herself, so she is likely to keep using



the fork even when Tom is not there to praise her.

Through these processes, social learning theory can account for Holly using a fork on her own: she has paid attention to her father as a role model, retained and reproduced his behaviour, and has been motivated through both external praise from Tom and self-reinforcement to continue it.

(Total for Question 10 = 8 marks)

TOTAL FOR SECTION D = 19 MARKS



SECTION E: ISSUES AND DEBATES

- 11 There are many considerations that need to be taken into account when conducting research with human participants.

Assess how far research from social and cognitive psychology could be considered ethical.

(8)

Psychologists conducting research with human participants must follow the BPS Code of Ethics and Conduct (2009), which is based on the principles of respect, competence, responsibility and integrity. Respect requires researchers to gain fully informed consent before the study, to keep participants' details private and confidential, and to offer the right to withdraw from the research at any time. Responsibility involves protecting participants from physical and psychological harm and debriefing them at the end of the study.

Some research in cognitive psychology can be considered ethical. Case studies regularly give participants a pseudonym or initials to protect their identity, such as H.M. (Henry Molaison), so confidentiality was respected. Laboratory experiments such as Baddeley (1966b) used word lists that caused no harm and volunteers who gave consent.

However, researchers working with H.M. could offer the right to withdraw and seek consent, but due to his impaired memory he could not remember previous sessions, so the extent to which he could give informed consent or withdraw is questionable, and this research may not be fully ethical.

Some social psychology research also met ethical guidelines. Sherif (1954/1961) had an individual interview the parents to explain the purpose of the study and gain permission for the boys to participate in all camp activities, so informed consent was obtained. On the other hand, participants in Milgram's (1963) research were deceived and showed visible signs of distress, such as sweating, trembling and nervous laughter, when they thought they were electrocuting the learner, and the prods undermined their right to withdraw, so by not protecting participants from harm this social psychology research



may not be considered ethical. Sherif's boys were also deceived about being studied and were exposed to hostility, so they were not fully protected from harm.

In conclusion, research from social and cognitive psychology can be considered ethical to a large extent, particularly modern research that follows the 2009 Code, but classic studies such as Milgram and some work with H.M. raise serious ethical issues, so how ethical the research is depends on the study and must be weighed against the value of its findings in a cost-benefit analysis.

(Total for Question 11 = 8 marks)



12 To what extent is biological psychology scientific?

(12)

To be considered a science, an approach should use the scientific method. It should conduct research with a high degree of control in a controlled, artificial setting, minimising extraneous variables as far as possible so that the research can be replicated. It uses hypothesis testing within a hypothetico-deductive model, where a theory produces testable hypotheses that are then tested experimentally, so concepts can be falsified (Popper). A scientific approach looks for cause and effect relationships, and its data should be objective and empirical. Scientific concepts also tend to be studied independently of their context, so they are reductionist.

Biological psychology appears highly scientific. Raine et al (1997) used the same continuous performance task for all participants and ensured that medication did not affect the brain scans, controlling extraneous variables, so studies such as this are scientific. Brain scans such as PET and fMRI produce objective, quantitative data and can be replicated using different participants in a controlled, artificial setting in a laboratory, so the findings can be checked for reliability.

Biological psychology also uses the hypothetico-deductive model. When testing the effects of recreational drugs, such as alcohol, biological psychologists hypothesise the impact the drug will have, for example that it will increase serotonin and elevate mood, and then test this, which contributes to the approach being scientific. Similarly, the role of hormones such as testosterone could be assessed by collecting data from people with high or low testosterone to see how this influences aggressive behaviour, so hypotheses are falsifiable.

However, biological psychology is not entirely scientific. Much of its research is correlational, such as twin studies and many hormone studies, which do not explain the underlying causes behind relationships and cannot establish cause and effect, so to

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some extent it is not scientific. Raine et al (1997) only showed a link between brain dysfunction and violence, not that it caused murder.

In addition, some biological explanations are difficult to test. Evolution and natural selection cannot be tested experimentally because they take place over thousands of years, so evolutionary explanations of aggression are often unfalsifiable and rely on retrospective explanation. Evolution also takes into account the environment, socialisation and the interrelationships between them, so it is not a fully reductionist concept, and so it is not wholly scientific in the narrow sense.

Furthermore, the scientific approach of biological psychology has costs. Controlled laboratory studies such as Raine et al lack ecological validity, and reducing complex behaviour such as aggression to neurotransmitters or hormones may ignore important social and cognitive factors, so being scientific may make findings less valid as explanations of real behaviour.

In conclusion, biological psychology is scientific to a large extent, as it uses controlled, replicable and objective methods such as brain scanning and the hypothetico-deductive model. However, its reliance on correlational evidence and the untestable nature of evolutionary explanations mean that it is not completely scientific, so it is best seen as one of the most scientific approaches in psychology rather than a fully scientific one.



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(Total for Question 12 = 12 marks)

TOTAL FOR SECTION E = 20 MARKS

TOTAL FOR PAPER = 90 MARKS



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