Write your name here

Surname
StemUp Model Solution

Other names

Pearson Edexcel
International
Advanced Level

Centre Number

Candidate Number

Psychology

International Advanced Subsidiary
Paper 1: Social and Cognitive Psychology

Thursday 11 January 2018 – Morning
Time: 1 hour 30 minutes

Paper Reference
WPS01/01

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 64.
- 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

SOCIAL PSYCHOLOGY

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

1 Psychologists frequently use secondary data in their research.

(a) Define what is meant by 'secondary data'.

(1)

Secondary data is data that has already been collected by someone else, for a different purpose, and is then used by the researcher (e.g. official statistics or records).

(b) Explain **one** strength and **one** weakness of using secondary data in psychological research.

(4)

Strength

Secondary data is cheaper and quicker to gather than running a new experiment, because the data already exists. This means researchers can access much larger quantities of data (e.g. national records), which increases the credibility and generalisability of their conclusions.

Weakness

Secondary data was collected to test a different aim from the current research, so it may not measure exactly what the researcher wants. The researcher also has no control over how it was gathered, so its accuracy cannot be checked, which reduces the validity of the conclusions drawn from it.

(Total for Question 1 = 5 marks)

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2 Research in social psychology has investigated many different types of conformity.

(a) Describe 'internalisation' as a type of conformity.

(2)

Internalisation is the deepest type of conformity, where a person changes both their public behaviour and their private beliefs because they genuinely accept the views of the group as correct. The change is permanent and continues even when the group is not present.

(b) Explain whether identification is an effective type of conformity in changing behaviour.

(4)

Identification is when a person changes their public behaviour to fit in with a group they value and want to belong to, e.g. adopting the dress and behaviour of a new friendship group. It is effective in the short term because the person behaves as the group expects while they are a member and want its approval, so behaviour does change. However, identification does not change the person's private beliefs, so the change only lasts while they remain part of the group. If they leave the group, or it stops being important to them, their behaviour is likely to revert to their own preferences. This means identification is less effective than internalisation at producing long-term behaviour change, although it is more lasting than compliance, so it is only partly effective.

(Total for Question 2 = 6 marks)

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3 Helen conducted an unstructured interview with residents in her local area about the behaviour of crowds in the park. Her sample group included 125 males and 175 females, all aged 24 years and over.

(a) Calculate the fraction of Helen's sample who were female.

You **must** express your answer in its lowest form.

(1)

Space for calculations

Total sample = 125 + 175 = 300

Females = 175 / 300

175 ÷ 25 = 7, 300 ÷ 25 = 12

Fraction who were female 7/12

(b) Calculate the percentage of Helen's sample who were male.

You **must** give your answer to the nearest whole number.

(1)

Space for calculations

Males = 125 / 300 × 100

= 41.67%

≈ 42% (nearest whole number)

Percentage who were male 42%

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(c) Explain **two** weaknesses of Helen's participant sample group.

(4)

1 *Helen only interviewed residents aged 24 years and over, so nobody younger took part. Younger people may use the park differently and see crowd behaviour differently, so her findings cannot be generalised to the views of younger people about crowds in the park.*

2 *Helen's sample was unequal by gender: 175 females but only 125 males. This means her findings about crowd behaviour in the park are biased towards female perspectives, so they may not represent how males see crowds.*

(d) Suggest **one** reason why a structured interview may increase the reliability of Helen's research into crowd behaviour in the park.

(1)

In a structured interview Helen would ask every resident the same set of questions about crowds in the park in the same order, so her research could be repeated and the answers compared consistently.

(Total for Question 3 = 7 marks)

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4 In your studies of social psychology, you will have conducted a practical investigation using a questionnaire.

Discuss how you designed and conducted your questionnaire.

(8)

Our questionnaire investigated obedience to authority figures. Its aim was to find out whether people say they would obey a male authority figure more than a female one. We wrote a mix of closed and open questions. Closed questions, such as "Do you always obey a police officer? Yes/No" and rating scales such as "Rate from 1 to 5 how likely you would be to follow a teacher's instruction", gave us quantitative data that was easy to compare and analyse, for example as percentages and bar charts. Closed questions alone lack detail, so we also included open questions such as "Why might you obey a male authority figure more than a female one?" to gather qualitative data that explained participants' reasons.

We kept the wording clear and avoided leading questions so that participants were not pushed towards an answer, which would have reduced validity. We also kept the questionnaire short, no longer than two sides of A4, because a long questionnaire causes fatigue and participants may answer carelessly. To reduce social desirability bias we made the questionnaire anonymous, so people felt able to admit that they obey authority.

Before using it, we carried out a pilot study on 5 participants to find design flaws. This showed that some participants did not understand the term "agentic state", so we removed it and rephrased the question in everyday language, which improved the validity of the answers.

To conduct it, we used an opportunity sample of 20 participants (10 males and 10 females) aged 16 to 18 from our school, which was quick but means the results may not generalise to older people. Every participant received the same standardised instructions and completed it in a quiet room, which made the procedure replicable. We followed ethical guidelines: we gained informed

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consent, told participants they had the right to withdraw, kept the data confidential and debriefed them at the end. Overall, the closed questions gave reliable data, but the self-report method means some answers may still have been socially desirable rather than truthful.

(Total for Question 4 = 8 marks)

TOTAL FOR SECTION A = 26 MARKS

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SECTION B

COGNITIVE PSYCHOLOGY

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

5 The multi-store model of memory by Atkinson and Shiffrin (1968) includes short-term memory and long-term memory stores.

(a) Describe what is meant by the terms 'capacity' and 'duration'.

(4)

Capacity

Capacity is the amount of information that a memory store can hold at any one time. For example, STM has a limited capacity of about 7 ± 2 items, whereas LTM is thought to have an unlimited capacity.

Duration

Duration is how long information can be held in a memory store before it is lost. For example, STM holds information for about 18 to 30 seconds unless it is rehearsed, whereas LTM can hold information for a lifetime.

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(b) Explain **two** ways that the case study of Henry Molaison (HM) demonstrates the difference between short-term memory and long-term memory.

(4)

1 *After the removal of his hippocampus, HM still had a functioning STM (he could hold a conversation and repeat digits) but he could not form new long-term memories. This shows STM and LTM are separate stores, because one can be damaged while the other still works.*

2 *HM could recall events from before his operation but not events experienced after it. This shows that transfer from STM to LTM depends on the hippocampus, so the two stores may be located in different regions of the brain.*

(Total for Question 5 = 8 marks)

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6 Manon has decided to carry out a piece of research to test whether those who practise playing a computer game every day will achieve a higher score than those who do not practise.

(a) State the independent variable (IV) and dependent variable (DV) for this study.

(2)

Independent variable (IV)

Whether or not the participant practises playing the computer game every day.

Dependent variable (DV)

The score each participant achieves on the computer game.

(b) Explain **one** participant variable that Manon may need to consider when planning her research.

(2)

Manon needs to consider whether participants have played this computer game (or similar games) before. Participants who already play it would have had extra practice, so their higher scores could be due to prior experience rather than the daily practice, which would confound the results.

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Manon decides to carry out a second piece of research to test whether boys are quicker at completing computer games than girls. She carries out a laboratory experiment asking her sample of 9 females and 16 males to complete a car racing computer game.

The scores for both groups are recorded in **Table 1** below.

Time taken (in minutes) to complete a car racing computer game	
Condition A Females	**Condition B Males**
18	18
19	17
19	17
22	18
25	21
30	16
23	13
20	14
22	16
–	18
–	14
–	16
–	17
–	18
–	14
–	14

Table 1

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The mean score for the time taken by females in Condition A to complete a car racing computer game is 22 minutes.

(c) Calculate the mean score for males in Condition B using the data in **Table 1**.

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

(1)

Space for calculations

Total for males = 18 + 17 + 17 + 18 + 21 + 16 + 13 + 14
+ 16 + 18 + 14 + 16 + 17 + 18 + 14 + 14 = 261

Mean = 261 ÷ 16 = 16.3125

= 16.31 minutes (2 d.p.)

Mean score for Condition B 16.31

(d) Explain **one** conclusion Manon can make from the data.

(2)

The mean time for females (22 minutes) is higher than the mean time for males (16.31 minutes). This suggests that males are quicker than females at completing the car racing computer game, supporting the idea that boys are quicker at computer games than girls.

(e) Identify the level of measurement for Manon's data in **Table 1**.

(1)

Interval data (time in minutes, a standard unit of measurement).

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Rather than using the range as a measure of dispersion, Manon was advised to use the standard deviation score.

(f) Explain why standard deviation may be an appropriate measure of dispersion that Manon could use to analyse her data.

(2)

Manon's female data includes an extreme score of 30 minutes from one participant. The range only uses the highest and lowest scores, so it would be distorted by this outlier, whereas standard deviation uses every score, so it is less affected by the 30 and gives a more accurate measure of the spread of times taken to complete the game.

(Total for Question 6 = 10 marks)

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7 Assess whether Baddeley and Hitch's (1974) working memory model is a complete explanation of memory.

(8)

Baddeley and Hitch (1974) proposed the working memory model (WMM) as an explanation of short-term memory. They argued that STM is not a single store, as in the multi-store model, but an active processor made up of several components. The central executive is the main component; it directs attention and controls the "slave" systems. The phonological loop holds speech-based information and is made up of the phonological store (inner ear) and the articulatory process (inner voice), which rehearses words. The visuo-spatial sketchpad temporarily stores visual and spatial information. Each slave system has a limited capacity, so two tasks using the same system interfere with each other, but tasks using different systems can be done at the same time.

There is evidence that the WMM is a better explanation of STM than the multi-store model. Gathercole and Baddeley (1993) found that participants performed much better on two tasks that used separate systems (a visual tracking task and a verbal task) than on two tasks that used the same system, supporting the idea of separate components. Case study evidence also supports it: the patient KF (Shallice and Warrington, 1970) had poor STM for verbal information but better STM for visual information, which suggests STM has separate stores, as the WMM predicts.

However, the WMM is not a complete explanation of memory. It only explains what happens within STM and makes no reference to how information is transferred into LTM or how it is stored and retrieved there, unlike the multi-store model. The central executive is also poorly explained: Baddeley and Hitch say it controls attention but do not explain what it is or how it works, so it is vague and over-simplistic. Baddeley later had to add the episodic buffer (2000) to explain how the systems link with LTM, which shows the original model was incomplete. In

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addition, the WMM ignores how memory is reconstructed, which Bartlett (1932) explained through schemas shaping recall in LTM.

In conclusion, the WMM is a well-supported and more detailed explanation of STM than the multi-store model, but because it says little about LTM and leaves the central executive unexplained, it is not a complete explanation of memory and needs to be combined with other theories.

(Total for Question 8 = 8 marks)

TOTAL FOR SECTION B = 26 MARKS

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SECTION C

Answer the question in this section. Write your answer in the space provided.

8 Nisa and Tobin carried out a field experiment at their local market to test obedience. Tobin was dressed in either casual clothes or a business suit when he approached members of the public and instructed them to carry out a small task. Nisa and Tobin found that the public were more likely to obey Tobin's instructions when he was wearing a business suit than when he was wearing casual clothes.

Evaluate how effectively agency theory could be used to support Nisa and Tobin's findings.

You **must** make reference to the context in your answer.

(12)

Milgram's agency theory explains obedience as a result of our place in a social hierarchy. People are normally in an autonomous state, where they act on their own free will and take responsibility for their actions. When given an order by someone they see as a legitimate authority figure, they undergo an agentic shift into the agentic state, where they see themselves as an agent carrying out that person's wishes and hand responsibility for their behaviour to the authority figure. Milgram argued that this state evolved because it allows hierarchical social systems to function smoothly. Moral strain may be felt, but binding factors keep the person obedient.

Agency theory can explain Nisa and Tobin's findings. When Tobin wore a business suit, the public were more likely to obey his instruction to carry out the small task because the suit signalled high status and so made him appear to be a legitimate authority figure. Members of the public may have shifted into the agentic state, assuming that Tobin was responsible for the request, so they obeyed. When Tobin wore casual clothes he looked like an ordinary member of the public with no higher position in the social hierarchy, so people remained in the autonomous state, felt responsible for their own choices and were more likely to refuse.

There is strong evidence for agency theory. In Milgram's (1963) study, 65% of participants

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obeyed the experimenter in a grey lab coat to the maximum 450 volts, and many said they continued because the experimenter took responsibility. Milgram's variations are even more relevant: in variation 13, when the orders were given by an ordinary man rather than the experimenter, obedience dropped to 20%. This mirrors the drop in obedience when Tobin wore casual clothes, so agency theory effectively supports their findings. Bickman (1974) also found that people were more likely to obey a stranger in a guard's uniform than one in a milk delivery or civilian outfit, which shows clothing is a key sign of legitimate authority, as in the market.

However, agency theory may not fully explain the findings. Social power theory (French and Raven, 1959) suggests that obedience depends on the type of power a person is perceived to hold. The public may have obeyed Tobin in a suit because of legitimate or referent power, admiring his status, rather than because they shifted into an agentic state. Agency theory also cannot explain individual differences: some people in the market obeyed Tobin even in casual clothes, and some refused even when he wore a suit. Adorno et al. (1950) suggested that people with an authoritarian personality are more likely to obey, so personality rather than an agentic shift may explain who obeyed. In addition, the task was small and harmless, so participants may have obeyed out of politeness without giving up responsibility at all, and agency theory cannot be directly tested because the agentic state cannot be observed or measured.

In conclusion, agency theory is fairly effective in supporting Nisa and Tobin's findings, as Milgram's variations and Bickman's uniform study both show that symbols of authority such as a business suit increase obedience. However, it is not a complete explanation, because social power and personality factors also explain why the public obeyed Tobin, so it is best combined with these other explanations.

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(Total for Question 8 = 12 marks)

TOTAL FOR SECTION C = 12 MARKS
TOTAL FOR PAPER = 64 MARKS

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