Please check the examination details below before entering your candidate information

Candidate surname	Other names
StemUp Model Solution	

Centre Number | Candidate Number

Pearson Edexcel International Advanced Level

Time 1 hour 30 minutes

Paper reference **WPS01/01**

Psychology

International Advanced Subsidiary
PAPER 1: Social and Cognitive Psychology

Calculators may be used.

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.
- Try to answer every question.
- 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

$$1-\frac{6\sum d^2}{n\left(n^2-1\right)}$$

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.

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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. Write your answers in the spaces provided.

1 In your studies of social psychology, you will have learned about research into obedience.

(a) Describe the procedure of Milgram's (1963) telephonic instructions (Experiment 7) study.

(4)

Milgram (1963) used 40 male volunteers from New Haven, aged 20 to 50, who were told the study was about the effect of punishment on learning. A rigged draw made each participant the "teacher" and a confederate, Mr Wallace, the "learner", who was strapped into a chair in the next room. The experimenter gave the initial instructions face to face in the same room, and then left the room, so the participant was alone. The teacher used a shock generator ranging from 15 to 450 volts in 15 volt steps, giving a shock for each wrong answer on a word-pair task. All further instructions and prods were given by the experimenter over the telephone, and the maximum voltage each participant gave was recorded.

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(b) Explain **one** conclusion that Milgram (1963) made from the telephonic instructions (Experiment 7) study.

(2)

Milgram concluded that the physical presence of the authority figure is important in whether a person obeys or defies. When the experimenter gave orders by telephone, only 9 of the 40 participants (22.5%) went to the maximum 450 volts, compared with 26 of 40 (65%) in the baseline study where he was in the room, so 31 of 40 participants did not fully obey. Some participants even gave lower shocks than instructed while saying they were obeying.

(Total for Question 1 = 6 marks)

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2 In your studies of social psychology, you will have learned about explanations of conformity.

(a) Explain **one** reason why minority influence may lead to conformity.

(2)

A minority that is consistent in its views can make the majority rethink the issue, so people internalise the new idea and change both their private beliefs and public behaviour (conversion). Moscovici et al. (1969) found that when a consistent minority called blue slides "green" on every trial, 8.42% of majority responses were "green", compared with only 1.25% when the minority was inconsistent.

(b) Explain **one** reason why minority influence may not lead to conformity.

(2)

If the minority is seen as rigid, inflexible and dogmatic, the majority is less likely to internalise its ideas, so conformity to the minority falls. Nemeth et al. (1974) found that a minority who repeated the same answer inflexibly had less influence than a minority who showed some flexibility in their responses, so consistency alone is not enough for a minority to be influential.

(Total for Question 2 = 4 marks)

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3 In your studies of social psychology, you will have learned about research into conformity, including Asch (1951).

(a) Explain **two** strengths of Asch's (1951) research into conformity.

(4)

1 *The procedure was standardised: every participant judged the same line lengths, with the confederates giving the same pre-arranged wrong answers on the same critical trials. This means Asch's study can be replicated exactly to test the reliability of his findings about social pressure from a majority group.*

2 *Asch used a controlled laboratory experiment, where the only thing that varied was the unanimous wrong answers of the majority. This gives high internal validity, as the incorrect answers given by participants on the critical trials can be put down to pressure from the majority rather than extraneous variables.*

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(b) Explain **two** improvements that could be made to Asch's (1951) research into conformity.

(4)

1 *Asch could use a more representative sample, including females and non-students from different ages and cultures, instead of only male American college students. This would make his findings about conformity to a majority group more generalisable to a wider target population.*

2 *Asch could use a more realistic, meaningful task, such as judging photographs of real objects or giving an opinion on a real issue, rather than judging the length of lines. This would increase the ecological validity of his findings about conformity in real-life situations.*

(Total for Question 3 = 8 marks)

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4 Kwame has been asked by his manager to work extra hours over the weekend. The manager said the work was very important for the business and needed completing urgently.

Kwame did not want to work the extra hours as he had planned to visit his friend, but instead he agreed to come in to work and do the extra hours at the weekend.

When Kwame arrived to work at the weekend, his manager was also there. The manager showed Kwame the tasks he needed him to do. The tasks were not Kwame's usual tasks, but he completed them in the way his manager had shown him.

Discuss how social power theory could explain Kwame's behaviour.

You must make reference to the context in your answer.

(8)

Social power theory (French and Raven, 1959) states that a person is socially influenced by a social agent when they perceive the agent to hold power over them. They identified five bases of power: legitimate, reward, coercive, expert and referent power. Kwame was socially influenced because he agreed to work the extra hours even though he did not want to and had planned to visit his friend.

Legitimate power is the belief that the agent has the right to make demands because of their role. Kwame's manager holds a higher position in the business hierarchy, so Kwame may feel he ought to obey a request that is described as "very important for the business". Reward power is the perception that the agent can give an incentive. Kwame may believe the manager can reward him with extra pay or a future promotion if he works at the weekend. Coercive power is the perception that the agent can punish. Kwame may fear that the manager could discipline or even dismiss him if he refused, which would explain why he gave up his own plans.

Expert power is the belief that the agent has superior knowledge and skill. The tasks were not Kwame's usual tasks and the manager showed him how to do them, so Kwame may see the manager as the expert and therefore completed them exactly in the way he was shown.

Referent power comes from respect and liking, so if Kwame admires his manager he may want

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to help him with urgent work.

However, the theory depends on Kwame's perception of power, which is subjective and cannot be observed, so it is hard to know which base of power actually caused his behaviour. Several bases probably worked together: legitimate and coercive power may explain why he agreed to come in, while expert power better explains why he copied the manager's method. His behaviour could also be explained by agency theory, as he may have moved into an agentic state, acting for his manager rather than for himself. Personal factors, such as needing the job, may matter too. Overall, social power theory gives a good explanation of Kwame's behaviour, especially the legitimate and expert power of his manager.

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(Total for Question 4 = 8 marks)

TOTAL FOR SECTION A = 26 MARKS

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SECTION B

COGNITIVE PSYCHOLOGY

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

5 In your studies of cognitive psychology, you will have learned about the multi-store model of memory (Atkinson and Shiffrin, 1968).

(a) Explain **one** strength of the multi-store model of memory as an explanation of memory.

(2)

There is credible research evidence for separate stores. Peterson and Peterson (1959) found that over 90% of trigrams were forgotten from short-term memory after 18 seconds when rehearsal was prevented by counting backwards. This supports the model's claim that STM has a limited duration and that rehearsal is needed to keep information and transfer it to long-term memory, giving the model credibility.

(b) Explain **one** weakness of the multi-store model of memory as an explanation of memory.

(2)

The model is reductionist, as it oversimplifies memory into three basic unitary stores with simple linear processes such as rehearsal. It therefore cannot account for different types of memory, such as visuo-spatial processing in STM or procedural memory in LTM. Case studies such as HM, who could learn new motor skills but not new facts, show that LTM is not a single store.

(Total for Question 5 = 4 marks)

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6 Kim wanted to test the impact of interference on short-term memory recall. She gathered a sample of eight participants to take part in her experiment.

- Condition A: participants were first shown 10 trigrams and asked to recall as many as they could immediately.
- Condition B: participants were then shown 10 different trigrams and asked to recall as many as they could after a 20-second interference task.

Kim recorded the number of trigrams recalled correctly.

The results are shown in **Table 1**.

Participant	Condition A Number of trigrams recalled correctly with immediate recall	Condition B Number of trigrams recalled correctly with an interference task of 20 seconds
A	9	4
B	9	2
C	8	3
D	9	2
E	7	1
F	3	4
G	7	3
H	8	2

Table 1

(a) Calculate the mean score for the number of trigrams recalled correctly in **Condition A**. You **must** give your answer to **one** decimal place.

(1)

Space for calculations

9 + 9 + 8 + 9 + 7 + 3 + 7 + 8 = 60

60 ÷ 8 = 7.5

Mean 7.5

(b) Calculate the median score for the number of trigrams recalled correctly in **Condition B**.

(1)

Space for calculations

Condition B in order: 1, 2, 2, 2, 3, 3, 4, 4

Middle two values: (2 + 3) ÷ 2 = 2.5

Median 2.5

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(c) Complete **Table 2** and calculate the Wilcoxon Signed Ranks test for Kim's data.

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

You **must** show your calculations.

(4)

Participant	Condition A Number of trigrams recalled correctly with immediate recall	Condition B Number of trigrams recalled correctly with an interference task of 20 seconds	Difference	Ranked difference
A	9	4	5	3.5
B	9	2	7	7.5
C	8	3	5	3.5
D	9	2	7	7.5
E	7	1	6	5.5
F	3	4	−1	1
G	7	3	4	2
H	8	2	6	5.5

Table 2

Space for calculations

Ranks of differences: 1 (F), 2 (G), 3.5, 3.5 (A, C), 5.5, 5.5 (E, H), 7.5, 7.5 (B, D)

Sum of positive ranks = 3.5 + 7.5 + 3.5 + 7.5 + 5.5 + 2 + 5.5 = 35

Sum of negative ranks = 1

T = the smaller total = 1 N = 8 (no zero differences)

Critical value for N = 8 ($p \leq 0.05$, two-tailed) = 3. As $1 \leq 3$, the result is significant.

T value 1

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(d) Give **two** reasons why Kim would have used a Wilcoxon Signed Ranks test for the data she gathered in her experiment.

(2)

1 *Kim used a repeated measures design, as the same eight participants took part in both conditions (immediate recall and the interference task), so the data are related.*

2 *Kim was testing for a difference between the two conditions of the IV in the number of trigrams recalled, and her data (scores out of 10) can be treated as at least ordinal level.*

(Total for Question 6 = 8 marks)

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7 Jaya is a waitress at a restaurant. A customer gave a verbal order to Jaya for some food. At the same time the restaurant manager was speaking to another customer nearby. Jaya could overhear the conversation. When Jaya reached the kitchen to order the food, she could not remember everything the customer had asked for.

(a) Describe, using the phonological loop, why Jaya could not remember everything the customer had asked for.

(2)

The phonological store (inner ear) holds speech-based information and has a limited capacity. Jaya was hearing the customer's order and the manager's conversation at the same time, so both sets of auditory input entered the phonological store and overloaded it. She also could not use the articulatory control process (inner voice) to rehearse the food order while hearing the manager speak, so parts of the order decayed or were displaced and were lost before she reached the kitchen.

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(b) Explain **one** strength and **one** weakness of using the working memory model (Baddeley and Hitch, 1974) to explain why Jaya could not remember everything the customer had asked for.

(4)

Strength

There is credible evidence that the acoustic store in working memory has a limited capacity, which explains why Jaya could not store the whole verbal order. Baddeley et al. (1975) found participants recalled more one-syllable words than five-syllable words (the word length effect), so Jaya's phonological loop could not hold the order alongside the manager's speech.

Weakness

The model may not fully explain Jaya's forgetting as it does not explain the role of LTM. Jaya probably has the restaurant menu stored in LTM, so the order should need little STM processing as it links to existing knowledge. The model also does not clearly explain how the central executive would direct her attention to the customer rather than the manager.

(Total for Question 7 = 6 marks)

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8 Evaluate the use of experimental methods when investigating human memory.

(8)

Experimental methods manipulate an independent variable (IV) to measure its effect on a dependent variable (DV), such as the number of items recalled. A laboratory experiment takes place in an artificial, highly controlled setting, while a field experiment takes place in a more natural setting that is familiar to the participants. Experiments can use different designs, such as independent groups or repeated measures, to allocate participants to conditions of the IV.

A strength of laboratory experiments is that extraneous variables can be controlled, so the IV is more likely to be the only thing affecting the DV. For example, Baddeley (1966b) could control noise and timing, which could otherwise prevent rehearsal, so he could conclude that LTM encodes information semantically. Standardised procedures also mean studies like Peterson and Peterson (1959) can be replicated to test reliability. Choosing a design such as independent groups also removes order effects like practice, so recall scores are a more valid measure of memory.

However, laboratory memory tasks are often artificial, such as recalling trigrams or word lists, which lack meaning and do not reflect how we use memory in everyday life, so ecological validity is low. Bartlett (1932) used a more natural approach, with participants recalling the War of the Ghosts story at different times and places, which may be a more valid test of how memory works in real life. On the other hand, field experiments have less control, so it is harder to replicate memory tasks and reliability is reduced. Participants may also show demand characteristics if they know their memory is being tested.

In conclusion, experimental methods are useful for establishing cause and effect in memory, especially for basic processes such as the duration of STM. However, their artificial tasks mean the findings should be supported by more naturalistic research before being applied to everyday

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memory.

(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.

9 Arthur and Benny are brothers. They recently attended a family wedding where they met their uncle who they had not seen for three years. Their uncle was talking about when Arthur and Benny were small children and one of them was hurt when they got in a fight about their toys.

Arthur remembered that Benny had pushed him over and he hurt his arm, but Benny remembered that he had tripped over one of the toys and fell onto Arthur accidentally.

Evaluate how well reconstructive memory (Bartlett, 1932), including schema theory, can explain why Arthur and Benny remember the event differently.

You must make reference to the context in your answer.

(12)

Bartlett's (1932) theory of reconstructive memory suggests that memory is not an exact record but is actively reconstructed each time we recall it, using what we already know to make sense of the information. Schemas are mental packages of knowledge built from past experiences and expectations. As we do not take in every detail of an event, schemas are used to fill in the gaps, so memories can become distorted in line with our expectations, culture and beliefs.

This can explain why Arthur and Benny remember the event differently. The event happened when they were small children, many years ago, so much of the detail will have been lost and filled in from schemas. Arthur may have a schema for children fighting over toys, which includes pushing, so he recalls Benny pushing him over and hurting his arm. Benny is likely to see himself as a non-aggressive person, so his schema of his own behaviour leads him to reconstruct the event as an accident where he tripped over a toy. The uncle also used the word "fight" when talking about the event, which provides new information that may have shaped the brothers' recall, leading Arthur to remember a deliberate push rather than an accident.

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Bartlett's War of the Ghosts study supports this, as British participants changed unfamiliar details of a Native American story to fit their own culture, such as "canoes" becoming "boats", showing that prior knowledge changes memories. Loftus and Palmer (1974) also found that changing one word in a question, such as "smashed" rather than "contacted", led to higher speed estimates of a car accident (40.5 mph compared with 31.8 mph), which supports the idea that the uncle's word "fight" could have distorted Arthur's memory.

However, Yuille and Cutshall (1986) found that eyewitnesses to a real-life shooting remained accurate months later and were not affected by misleading questions, suggesting that memories of real, emotional events, like Arthur getting hurt, may not be reconstructed as easily. The differences between the brothers could instead be due to them simply attending to different parts of the event, or to Benny not wanting to accept blame. In addition, schemas cannot be directly observed or measured, so schema theory is hard to test scientifically and it is difficult to prove that schemas caused the brothers' different memories. Bartlett's own study also lacked control, as instructions and recall conditions were not standardised.

Overall, reconstructive memory explains Arthur and Benny's different memories well, because the event was long ago, involved ambiguous details that schemas could fill in, and was discussed using a leading word by the uncle. However, as schemas cannot be tested directly and other factors such as wanting to avoid blame could also explain the differences, it is likely to be only a partial explanation.

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(Total for Question 9 = 12 marks)

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

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