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

Wednesday 17 January 2024

Afternoon (Time: 1 hour 30 minutes)

Paper reference **WPS01/01**

Psychology

International Advanced Subsidiary

UNIT 1: Social and Cognitive 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 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 Milgram's research into obedience.

(a) Describe the results of Milgram's ordinary man gives orders (Experiment 13) study.

(2)

When the orders were given by an "ordinary man" rather than the experimenter, obedience fell sharply: only 4 out of 20 participants (20%) obeyed and gave the full 450 volt shock, compared with 65% in the baseline study, and 15 out of the 20 participants refused to continue to shock the learner beyond 300 volts.

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(b) Explain **one** strength and **one** weakness of Milgram's ordinary man gives orders (Experiment 13) study.

(4)

Strength

Milgram used a standardised procedure for every participant: the experimenter was called away and the ordinary man gave the same scripted instruction to raise the shock level one step each time. This means the study could be replicated, so the findings about the effect of the status of the authority figure on obedience can be considered reliable, having been repeated with each of the 20 participants.

Weakness

Being told by an ordinary person to give electric shocks to a "learner" for wrong answers on a memory test is not a realistic part of everyday life. This means the study lacks task validity, because the way obedience to an authority figure without status was measured is not something people would normally need to do, so the findings may not generalise to real-life obedience.

(Total for Question 1 = 6 marks)

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2 In your studies of conformity, you will have learned about factors affecting conformity.

(a) Explain **one** reason why individual differences (personality) can affect conformity.

(2)

A person with an external locus of control is more likely to conform, as they believe their behaviour is the result of external influences and forces such as other people. Spector (1983) found that 157 students with high external locus of control scores were more likely to conform to normative social influence in order to be accepted by the group.

(b) Explain **two** reasons why culture can affect conformity.

(4)

1 *In a collectivist culture, such as Korea, cultural norms are group orientated, so people value fitting in with the group and levels of conformity may be higher. Bond and Smith (1996) carried out a meta-analysis of 133 studies from 17 countries that used Asch's line-judging task and found conformity was greater in collectivist than in individualist countries.*

2 *Cultures that need a high level of co-operation for economic success or survival develop more conformist norms than cultures that need less group work. Berry (1967) found that the Temne, a traditional farming community relying on shared crops, showed higher conformity to group norms than Eskimo (Inuit) and Scottish people, whose hunting and fishing is more independent.*

(Total for Question 2 = 6 marks)

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3 Archie had just started walking his dog in his local village when a police officer stopped him. The police officer told Archie that there had been a chemical gas leak and that all residents in the village must go home, close their windows, and remain inside.

Archie cancelled his plan to walk the dog and rushed home. He checked all his windows were closed. He did not leave his house until the police sent a message to all residents giving them permission to go outside again.

Describe why Archie is obedient and follows the instructions of the police officer.

Obedience is following an order from an authority figure who is perceived to be legitimate and to have the status to give the order. Archie would see the police officer as a legitimate authority figure in society, with the knowledge about the chemical gas leak and the right to instruct residents, so he obeyed the order to go home and close his windows. According to agency theory (Milgram), a person may give up their own free will and move into an agentic state, acting as an agent of the person in authority and seeing them as responsible for the outcome. This explains why Archie cancelled his own plan to walk the dog, rushed home and did not go back outside until the police gave all residents permission to do so.

(Total for Question 3 = 4 marks)

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4 Silla was investigating majority influence and used a questionnaire with closed-ended questions to gather data about group behaviour. She totalled the scores for each respondent to show how likely they were to conform to a majority. A score of 0 indicated the respondent was very unlikely to conform, and a score of 10 indicated the respondent was very likely to conform.

The results of Silla's investigation are shown in **Table 1**.

Respondent	Score for conformity (out of 10)
A	6
B	7
C	3
D	8
E	1
F	4
G	3
H	9
I	2
J	3

Table 1

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(a) Calculate the ratio of respondents scoring less than five to those scoring over five.

You must give your answer in its lowest form.

(1)

Space for calculations

Less than 5: C, E, F, G, I, J = 6 respondents

Over 5: A, B, D, H = 4 respondents

6 : 4 = 3 : 2

Ratio 3 : 2

(b) Calculate the mean score for the data from all respondents in **Table 1**.

You **must** give your answer to **one** decimal place.

(1)

Space for calculations

6 + 7 + 3 + 8 + 1 + 4 + 3 + 9 + 2 + 3 = 46

46 ÷ 10 = 4.6

Mean 4.6

(Total for Question 4 = 2 marks)

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5 Assess how well research into conformity has developed our understanding of social influences on human behaviour.

(8)

Asch (1951) carried out a laboratory experiment to see whether social pressure from a majority could make a person conform on an unambiguous line length judgement task. An opportunity sample of 50 male students from Swarthmore College in America each sat with a group of confederates who gave the same wrong answer on 12 of the 18 trials (the critical trials). Asch found that about 75% of participants conformed at least once on the critical trials, agreeing with the majority even though the answer was clearly wrong, and overall conformity was about 37%. Sherif (1935), using the autokinetic effect, found that over several trials group members' estimates of how far a light moved converged to a common group norm.

This research has developed our understanding because it shows that social influence can change behaviour even when the correct answer is obvious, explained by normative social influence (wanting to be accepted), while Sherif shows that in ambiguous situations people change their opinions to match the group, explained by informational social influence. Asch also replicated his study with variations, finding conformity fell when one confederate gave the right answer and rose with a majority of three or more, so it identified factors that affect how much people are influenced by others.

However, judging line length is not a realistic way to measure conformity, as the task has little consequence in real life, so the research lacks task validity and may tell us little about social influence in important real-life decisions. Asch's sample was also androcentric, using only American male students, so the findings may not apply to women or to collectivist cultures, where Bond and Smith (1996) found conformity was higher. The research was also carried out in the 1950s in America, a time of strong conformity, so it may be era-dependent.

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Overall, conformity research has greatly developed our understanding by showing that both normative and informational social influence change behaviour, and by identifying factors such as group size and support. However, as it relies on artificial tasks and narrow samples, it explains conformity in the laboratory better than in everyday life, so its contribution is valuable but limited.

(Total for Question 5 = 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.

6 Eliza is a teaching assistant who has been asked to help Darius learn a map of a city for a geography test.

Eliza intends to use her understanding of the working memory model (Baddeley and Hitch, 1974) to plan activities to help Darius learn the map.

(a) Describe, using the phonological loop, how Eliza can help Darius learn the map of the city.

(2)

Eliza could ask Darius to read aloud the names of the roads and buildings on the map, so he articulates them using the articulatory process, and then to repeat each landmark and route sub-vocally, for example "past the station, left onto High Street" ten times, so the names are rehearsed in his articulatory loop (inner voice).

(b) Describe, using the visuo-spatial sketchpad, how Eliza can help Darius learn the map of the city.

(2)

Eliza could ask Darius to trace his finger along the roads on the map so he uses spatial processing to learn where the main landmarks are in relation to each other, and then to draw the map himself from memory using a different colour for each landmark, creating his own visual image of the city map in his visuo-spatial sketchpad.

(Total for Question 6 = 4 marks)

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7 Melanie is planning a laboratory experiment to see whether or not visual interference has an impact on the accuracy of short-term memory recall of word lists. She has gathered a total of 18 participants to take part in her experiment.

(a) Describe how Melanie could use an independent groups design for her experiment.

(3)

Melanie would split her 18 participants into two separate groups, with 9 participants in each group, allocated randomly, for example by drawing names from a hat. One group would do the first condition of the IV, learning and recalling the word lists with no visual interference, as a baseline measure of recall. The other group would do the second condition, being shown visual distractions, such as flashing images on a screen, while learning the words. Each participant takes part in only one condition, and the number of words recalled accurately by each group is compared.

(b) Explain **one** weakness of a laboratory experiment in terms of validity.

(2)

A laboratory experiment takes place in an artificial setting with artificial tasks, such as learning word lists, that do not reflect real-life situations and experiences. Therefore there is low ecological validity, as the findings about memory may not apply to how people behave in the real world.

(Total for Question 7 = 5 marks)

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8 Leonardo investigated whether the chunking of information would improve recall of numbers. He presented participants with 10 number sequences that each contained 12 digits.

- **Condition A:** participants were presented with each number sequence as a whole number; for example 254879645235
- **Condition B:** the same participants were presented with each number sequence again, but as chunked numbers; for example 254 879 645 235

Leonardo recorded how many number sequences participants recalled in each condition accurately.

(a) (i) Calculate the T value for the data gathered by Leonardo by completing **Table 2**.

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

You **must** show your working out.

(4)

Participant	Condition A	Condition B	Difference	Ranked Difference
A	2	5	−3	6
B	3	5	−2	4
C	4	3	+1	2
D	6	7	−1	2
E	4	4	0	–
F	5	8	−3	6
G	2	5	−3	6
H	3	2	+1	2

Table 2

Space for calculations

Difference = A − B. Participant E has a difference of 0, so is removed: N = 7

Ranks: the three 1s share ranks 1 to 3 = 2; 2 = rank 4; the three 3s share ranks 5 to 7 = 6

Sum of positive ranks = 2 + 2 = 4

Sum of negative ranks = 6 + 4 + 2 + 6 + 6 = 24 T = smaller sum = 4

T 4

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(ii) Determine, using your answer to 8(a)(i), whether Leonardo's results are significant at P⩽0.05 for a one-tailed (directional) test.

The critical values tables can be found at the front of this paper.

(1)

The calculated value of T = 4 is higher than the critical value of 3 for N = 7, one-tailed at p≤0.05, so the results are not significant and the null hypothesis is accepted.

(b) Explain **two** improvements that Leonardo could make to his investigation.

(4)

1 *Leonardo could use two different sets of 12-digit number sequences, one for each condition, instead of showing the same numbers again in Condition B. This would prevent an order (practice) effect from participants having already rehearsed the numbers, so any better recall would be due to chunking, making the results more valid.*

2 *Leonardo could use more than 8 participants, for example 30, to reduce the impact of anomalies on his results about chunking. This would stop his data being skewed by individual differences in memory ability, making his findings about improvements in recall more reliable and generalisable.*

(Total for Question 8 = 9 marks)

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9 Kiwi and Isla are attending a concert of their favourite rock band, 'The Vengeful Snakes'. The music is very loud and lots of people are shouting. Both girls sing along to some of the songs with the audience. Isla is distracted from the music when a man is knocked over by the crowd who are dancing.

During a light show at the end of the concert, the band members jump into the audience. Kiwi tries to run to the front to get to the band, but she is blocked by a large group, so she returns to Isla.

As they leave the concert, Isla commented that she could not remember the song that played when the man was knocked over. Kiwi laughed and said she could not even remember the light show. They both remembered which songs they sang.

Discuss, using the multi-store model of memory (Atkinson and Shiffrin, 1968), Kiwi and Isla's memory of the events at the concert.

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

(8)

The multi-store model (Atkinson and Shiffrin, 1968) proposes that memory is made up of three separate stores, with information flowing between them in a linear way. The sensory register receives information from the environment through all five senses, holding it in a modality-specific form for a very short time. Only information that is given attention passes into the short-term store, which has a limited capacity of about 5 to 9 items, encodes mainly acoustically and lasts up to about 30 seconds unless it is rehearsed. Rehearsal transfers information into the long-term store, which encodes mainly semantically and has an unlimited capacity and duration.

At the concert the music was very loud and lots of people were shouting, so the girls' sensory registers were flooded with auditory and visual information. They could not attend to all of it, so much of it decayed from the sensory register and was never passed to short-term memory, leaving gaps in what they could later recall about the concert.

Isla could not remember the song playing when the man was knocked over because her attention was distracted by the man falling. As the model states, information that is not attended to is not transferred from the sensory register to the short-term store, so the song

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was lost. However, she may still remember the man falling, as this was what she attended to.

Kiwi could not remember the light show because, when the band jumped into the audience, she was focusing on running to the front and getting past the large group. The limited capacity of her short-term store was taken up with locating the band, so information about the light show was displaced and not rehearsed, and it never reached her long-term store.

Both girls remembered which songs they sang because singing along is a form of rehearsal. Repeating the lyrics aloud kept the songs in the short-term store and, as the model predicts, rehearsal transferred them into the long-term store, where they could be recalled as they left. Their favourite band's songs were also likely to be familiar, so they may already have been in long-term memory.

However, the model may be too simple to explain all of their memories. Rehearsal is not the only way information enters long-term memory: an emotional event like the band jumping into the crowd could be remembered without rehearsal, and the case of HM, who could learn new skills but not new facts, suggests long-term memory is not a single store. Overall, the multi-store model explains well why the girls forgot unattended details and remembered the songs they rehearsed, but it does not fully account for all of their experiences.

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(Total for Question 9 = 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.

10 In your studies of cognitive psychology, you will have learned about one of the following contemporary studies in detail:

- Darling et al. (2007)
- Sacchi et al. (2007).

Evaluate your chosen contemporary study.

(12)

Chosen study

Darling et al. (2007)

Darling et al. (2007) investigated whether visual appearance and spatial location are processed by separate components of visuo-spatial working memory. The sample was 72 participants, 44 females and 28 males, from the non-student volunteer participation panel at the University of Aberdeen. They were randomly allocated to one of six combinations of memory task (remembering location or appearance) and interference task (control, spatial tapping or dynamic visual noise). On a black screen with white squares, a letter "P" was shown in one position and font, and participants completed three sets of 24 trials. Spatial tapping disrupted memory for location but not appearance, while dynamic visual noise disrupted memory for appearance but not location, implying that appearance information is accessed differently from location information, so "visuo-spatial" memory may reflect separate components.

One strength is that participants were randomly allocated to their memory and interference tasks. This is an objective way of allocating participants, so it avoids experimenter bias in who did each task and increases the reliability of the findings. The trials were also controlled and standardised, so every participant saw the same presentation of the location and font of the "P". This gives the study internal validity, because Darling et al. can be more certain that the interference task was the only thing affecting memory accuracy, rather than extraneous

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variables.

A further strength is that each participant completed three sets of 24 trials, so the task was tested and re-tested within the study. This gives internal reliability and means the findings about visual and spatial memory were not the result of a single chance performance. The highly controlled procedure also makes the study replicable, so its results can be checked by other researchers.

However, the sample was a volunteer sample from one university panel in Aberdeen. Not everyone has the time or motivation to volunteer for research, so the participants may not represent a range of individuals, and the findings may not reflect the memory skills of the wider population, reducing generalisability.

Another weakness is that Darling et al. only measured one category of visual information: judgements about the location and font of a single letter on a black and white screen. This is reductionist, as it oversimplifies human visual processing. In everyday life, visual and spatial memory deals with a huge range of stimuli, such as colours, faces, movement and complex scenes, so the findings may lack ecological validity and may not apply to everyday visual or spatial processing.

In conclusion, Darling et al. (2007) provide well-controlled and reliable evidence for separate visual and spatial components of working memory, supporting the idea that the visuo-spatial sketchpad has distinct parts. However, because of its volunteer sample and artificial, narrow task, the findings should be generalised to everyday memory with caution.

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(Total for Question 10 = 12 marks)

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

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