Please check the examination details below before entering your candidate information

Candidate surname	Other names
StemUp Model Solution	

Pearson Edexcel
International Advanced Level

Centre Number	Candidate Number

Monday 13 January 2020

Morning (Time: 1 hour 30 minutes) | Paper Reference **WPS01/01**

Psychology

International Advanced Subsidiary
Paper 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.
- 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 According to social power theory there are different types of power that can be used to explain obedience to authority.

(a) Complete **Table 1** to name the **two** types of social power that can be used to explain obedience to authority.

(2)

Definition of type of social power	Type of social power
The authority figure has an ability (perceived or real) to punish a person for disobedience.	*Coercive power*
The authority figure has superior knowledge and / or skills (perceived or real).	*Expert power*

Table 1

(b) Explain **one** strength and **one** weakness of social power theory.

(4)

Strength

One strength is that social power theory can be applied to real-life obedience. For example, soldiers in the Holocaust may have perceived their officers to have legitimate power, because the officers held an appointed position of authority in the army, and coercive power to punish disobedience. This helps to explain why the soldiers obeyed orders to carry out acts they might otherwise have refused.

Weakness

One weakness is that French and Raven claim obedience depends on the type of power the authority figure possesses, but this is not the only explanation of obedience. Milgram's (1963) agency theory instead suggests that people obey because they move into an agentic state, giving up their free will and seeing themselves as acting for the authority figure, so social power theory is only a partial explanation.

(Total for Question 1 = 6 marks)

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2 Researchers sent two groups of 20 students an email requesting they attend a meeting about a school trip. The meeting is to be held during the students' lunch break. One email was sent from a confederate student and one was sent from a confederate teacher.

- Condition A received the email about the meeting from a student.
- Condition B received the email about the meeting from a teacher.

The number of students who attended the meeting is recorded in **Table 2** below.

Condition A **Number of students who attended the meeting after the email was sent by a student**	**Condition B** **Number of students who attended the meeting after the email was sent by a teacher**
5	15

Table 2

(a) Calculate the percentage of students in Condition A who did **not** attend the meeting.

(1)

Space for calculations

Did not attend in Condition A = 20 − 5 = 15 students

15 ÷ 20 × 100 = 75%

Percentage 75%

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(b) Describe how the researchers could gather qualitative data about why the students attended the meeting.

(3)

The researchers could carry out an unstructured interview with each student who attended the meeting, asking open questions such as "Why did you choose to give up your lunch break to go to the meeting after you received the email?" The students would answer in their own words and the answers would be recorded on a voice recorder and transcribed, so the reasons could be analysed later using thematic analysis to find common themes, such as respect for the teacher's authority or interest in the school trip.

(c) Explain, using individual differences, **two** reasons why the students did, or did not, attend the meeting.

(4)

1 *Students who attended the meeting, giving up their lunch break, may have an external locus of control. Rotter suggests this is a reliance on external forces, such as authority figures, to make decisions for them, so they followed the instruction given in the email, especially when it came from a teacher.*

2 *Students who did not attend may have a neurotic extrovert personality, which according to Eysenck (1975) is a type of personality more likely to disobey instructions, so they ignored the email request, particularly in Condition A where it came from a student with no authority over them.*

(Total for Question 2 = 8 marks)

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3 Molly has been asked by her boss to send out a self-report questionnaire asking opinions about whether the quality of the coffee served in the office building coffee shop is good. There are 250 employees who have access to the coffee shop.

Molly will be gathering primary data.

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

(1)

Primary data is data collected first-hand by the researcher themselves, during their own research and for its specific purpose, such as Molly's questionnaire answers.

(b) Describe how Molly might gather a stratified sample of the employees in the office building.

(3)

Molly would first decide on the subgroups (strata) within the 250 employees in the office building, for example males and females, or employees from each department. She would then calculate the percentage of the 250 employees that falls into each subgroup, for example 60% female and 40% male. Finally, she would randomly select a proportionate number of employees from each subgroup, so a sample of 50 would contain 30 females and 20 males, representing the full range of the target population in the office building.

(Total for Question 3 = 4 marks)

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4 In social psychology, you will have learned about the following classic study in detail.

- Moscovici et al. (1969) Influence of a Consistent Minority on the Responses of a Majority in a Color Perception Task.

Evaluate the classic study by Moscovici et al. (1969).

(8)

Moscovici et al. (1969) carried out a laboratory experiment to see whether a consistent minority could influence the responses of a majority in a colour perception task. 172 American female participants were randomly allocated to a consistent, inconsistent or control condition, in groups of six: four naïve participants (the majority) and two confederates (the minority). All participants were first given an eye test to check they were not colour-blind. Each group was shown 36 slides that were all blue but of differing shades and asked to call out the colour aloud. In the consistent condition the confederates called every slide "green", and in the inconsistent condition they said "green" on 24 slides and "blue" on 12. Naïve participants in the consistent condition said "green" on 8.42% of trials, compared with only 1.25% in the inconsistent condition and 0.25% in the control group, so a consistent minority had more influence.

One strength is the high level of control. Using standardised procedures, such as testing everyone for colour-blindness and showing the same 36 slides, reduced extraneous variables that could have affected ability to do the colour perception task, so differences between conditions can be put down to the consistency of the minority. Random allocation to conditions also reduced experimenter bias, increasing internal validity and making the study replicable.

However, the laboratory environment was artificial, as naming the colours of slides lacks the atmosphere of real-life situations in which minorities, such as pressure groups, influence a majority on important issues, so the study has low ecological validity. The sample is also not generalisable to people who are not female or American, as they may respond differently to

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minority influence. Participants may also have shown demand characteristics, as they knew they were taking part in a study.

Overall, the study gives well-controlled evidence that consistency is key to minority influence, but because of its artificial task and restricted sample, the findings should be applied cautiously to real-world social change.

(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 Bartlett's (1932) theory of reconstructive memory includes schemas.

(a) Describe what is meant by the term 'schema'.

(2)

A schema is a mental structure, or "packet" of knowledge, that helps us to organise and interpret incoming information. It represents an individual's knowledge and past experiences about the world, for example a schema for a restaurant, and shapes what we expect and remember.

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(b) Explain **one** strength and **one** weakness of Bartlett's (1932) theory of reconstructive memory.

(4)

Strength

One strength is that the theory is supported by Bartlett's War of the Ghosts study (1932), which showed that when information is absent people fill in the gaps from their own schemas. For example, participants from an English cultural background changed "canoes" into "boats" when recalling the Native American story, showing memory is reconstructed to fit existing schemas.

Weakness

One weakness is that the theory is not a complete explanation of memory. It suggests memories are part traces and part schemas encoded at the time of the event, but it fails to explain exactly how memory is reconstructed at the point of recall, or the biological processes involved, so it is only a partial explanation of memory processing.

(Total for Question 5 = 6 marks)

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6 Researchers have developed a new memory game which may enhance recall. They advertised in a local newspaper for volunteers to take part in their experiment. The volunteers were asked to practice the new memory game once a day for 28 days.

A measure of their recall was made before and after the 28 days using a test that consisted of a list of 100 words that they were shown for 20 minutes. They were then asked to recall as many of the words as they could.

The results are shown in **Table 3**.

Participant	Before memory game Number of words recalled out of 100	After memory game Number of words recalled out of 100
A	44	78
B	47	74
C	56	88
D	65	76
E	68	80
F	54	82

Table 3

(a) Identify the fully operationalised independent variable (IV) for this experiment.

(1)

Whether the participants' recall of the list of 100 words was tested before or after practising the new memory game once a day for 28 days.

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(b) Complete **Table 4** and calculate the Wilcoxon Signed Ranks test.

(4)

Participant	Before memory game Number of words recalled out of 100	After memory game Number of words recalled out of 100	Difference	Rank	Rank if positive	Rank if negative
A	44	78	−34	6		6
B	47	74	−27	4		4
C	56	88	−32	5		5
D	65	76	−11	2		2
E	68	80	−12	3		3
F	54	53	+1	1	1	
				Total:	1	20

Table 4

Space for calculations

Difference = Before − After (no differences of 0, so N = 6)

Smallest difference (1) gets rank 1, largest (34) gets rank 6

Sum of positive ranks = 1

Sum of negative ranks = 6 + 4 + 5 + 2 + 3 = 20

T = the smaller total = 1

T value ..... 1 .....

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(c) Describe **one** control that researchers would have considered for the memory game used in this experiment.

(2)

The researchers would have needed to make sure the word lists used in the recall test before and after the 28 days were matched for word length and how common the words are, so that both tests were of the same difficulty and any improvement in recall was due to the memory game.

Researchers randomised the order of the words for the recall test.

(d) Define the term 'randomisation'.

(1)

Randomisation is when something, such as the order of items or the allocation of participants to conditions, is decided by chance, so the researcher has no influence over it.

(Total for Question 6 = 8 marks)

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7 In your studies of cognitive psychology, you will have conducted a practical investigation.

(a) State the aim of your cognitive practical investigation.

(1)

To test the duration of short-term memory by seeing whether the length of an interference task (counting backwards) affects recall of nonsense trigrams.

(b) Describe the procedure of your cognitive practical investigation.

(3)

I carried out a laboratory experiment using a repeated measures design. Each participant was given a list of 25 three-letter nonsense trigrams, such as WXT, to learn, shown one at a time. After each trigram they did an interference task of counting backwards in threes out loud from a number such as 84, to prevent rehearsal. The interference task increased in length after each trigram from 3, 6, 9, 12 to 15 seconds, then the participant wrote down the trigram, and the number recalled correctly at each delay was recorded as quantitative data.

(Total for Question 7 = 4 marks)

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

- Darling et al. (2007) Behavioural evidence separating components within visuo-spatial working memory.
- Saachi et al. (2007) Changing history: doctored photographs affect memory for past public events.

Evaluate your chosen contemporary study.

(8)

Chosen study

Darling et al. (2007)

Darling et al. (2007) aimed to see whether visual appearance and spatial location are held by separate components within visuo-spatial working memory. 72 participants were recruited from the non-student volunteer participation panel of the Department of Psychology at the University of Aberdeen. They were randomly allocated to one of six conditions, combining a memory task (location or appearance) with an interference task (control, spatial tapping or dynamic visual noise). Participants were shown a black screen with 30 white squares, one of which was filled with a lowercase letter "p" in different font styles, and had to remember either the location of the square or the appearance of the letter. Tapping disrupted memory for location but not appearance, while dynamic visual noise disrupted memory for appearance but not location, implying appearance information is accessed differently from location information.

One strength is that randomly allocating participants to their memory and interference tasks avoided any experimenter bias in participant selection, and the laboratory setting gave high control, so the double dissociation found is a reliable result. The findings are also supported by Tresch et al. (1993), who found that location recall was disrupted by a movement discrimination task, adding credibility to a separate spatial component.

However, the participants all came from one university panel in Aberdeen, which may not

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represent the memory skills of the wider population, so the findings may not be generalisable. Also, Darling only measured one category of visual information in black and white, whereas everyday visual memory deals with a wide variety of stimuli such as colour, movement and complex scenes, so the task was not a valid measure of visual memory.

Overall, the study gives well-controlled evidence that visuo-spatial working memory has separate visual and spatial components, but its artificial task means conclusions about everyday memory should be made with caution.

(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 To what extent can the working memory model (Baddeley and Hitch, 1974) be considered a credible explanation of memory?

(12)

Baddeley and Hitch (1974) proposed the working memory model, which sees short-term memory as an active processor made up of several separate stores rather than the single store of the multi-store model. The central executive is the main part of the model: it directs attention and controls the "slave" systems, but has very limited capacity. The phonological loop holds speech-based information and is made up of the phonological store (the "inner ear") and the articulatory loop (the "inner voice"), which rehearses information sub-vocally. The visuospatial sketchpad processes images, dimensions and the positions of objects in the environment. Baddeley (2000) later added the episodic buffer to link the components with long-term memory.

There is credible evidence for distinct components. The case of KF, who had brain damage after a motorbike accident, showed impaired verbal (phonological) short-term memory but unaffected visuospatial short-term memory, suggesting these are separate stores. The case of PV, who could repeat words in her own language but could not learn new vocabulary in an unfamiliar foreign language, gives credibility to speech-based processing in the phonological loop. Dual-task studies also show people can do a verbal and a visual task at the same time with little loss of performance, but not two tasks using the same component. The model has also been applied successfully to help children with dyslexia and memory impairments, so it has a credible use in society.

However, the central executive is vague, and PET scans have been inconclusive in locating where central executive functioning takes place, so it is hard to test and its credibility is questioned.

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Lieberman (1980) criticises the visuospatial sketchpad, as people who are blind can have spatial awareness without any visual input, which reduces the credibility of treating visual and spatial processing as a single component. The model also does not fully consider long-term memory, such as how information is transferred to or recalled from LTM, so it is only a partial explanation of memory.

Overall, the working memory model is a credible explanation of short-term memory, because it is supported by case studies, dual-task research and practical applications, and it is more detailed than the multi-store model. However, as the central executive is poorly defined and the model focuses only on short-term processing, it is credible as an explanation of short-term memory but not of memory as a whole.

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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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