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

Tuesday 18 October 2016 – Afternoon
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**
4	1.000	1.000	1.000	1.000	1.000
5	0.700	0.900	0.900	1.000	1.000
6	0.657	0.771	0.829	0.943	0.943
7	0.571	0.679	0.786	0.857	0.893
8	0.548	0.643	0.738	0.810	0.857
9	0.483	0.600	0.683	0.767	0.817
10	0.442	0.564	0.649	0.733	0.782
11	0.418	0.527	0.609	0.700	0.755
12	0.399	0.504	0.587	0.671	0.727
13	0.379	0.478	0.560	0.648	0.698
14	0.367	0.459	0.539	0.622	0.675
15	0.350	0.443	0.518	0.600	0.654
16	0.338	0.427	0.503	0.582	0.632
17	0.327	0.412	0.482	0.558	0.606
18	0.317	0.400	0.468	0.543	0.590
19	0.308	0.389	0.456	0.529	0.575
20	0.299	0.378	0.444	0.516	0.561
21	0.291	0.369	0.433	0.503	0.549
22	0.284	0.360	0.423	0.492	0.537
23	0.277	0.352	0.413	0.482	0.526
24	0.271	0.344	0.404	0.472	0.515
25	0.265	0.337	0.396	0.462	0.505
26	0.260	0.330	0.388	0.453	0.496
27	0.255	0.323	0.381	0.445	0.487
28	0.250	0.317	0.374	0.437	0.479
29	0.245	0.312	0.367	0.430	0.471
30	0.241	0.306	0.361	0.423	0.463

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 BEGINS ON THE NEXT PAGE.

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SECTION A

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

1 A researcher conducted a study in Spain to see if people would obey instructions given by a stranger. The researchers used two male confederates dressed either in everyday clothes or in a security guard uniform. The confederates stood on a public street and gave instructions to people walking past to pick up a piece of litter and put it in the bin.

The results of this investigation are shown in **Table 1**.

Condition	Number of people obeying instructions	Number of people refusing to obey instructions
Condition A Confederate wearing everyday clothes	30	90
Condition B Confederate wearing a security guard uniform	110	14

Table 1

(a) Suggest **two** conclusions that can be drawn from this study.

(2)

1 *People were much more likely to obey a stranger wearing a security guard uniform (110 obeyed) than one in everyday clothes.*

2 *People showed more resistance to instructions from a stranger in everyday clothes, as 90 out of 120 refused to obey.*

(b) Calculate the fraction of people **refusing to obey instructions** in condition A.

(1)

Space for calculations

Total in condition A = 30 + 90 = 120

Fraction refusing $= \frac{90}{120} = \frac{3}{4}$

Fraction of people refusing to obey instructions in condition A *3/4*

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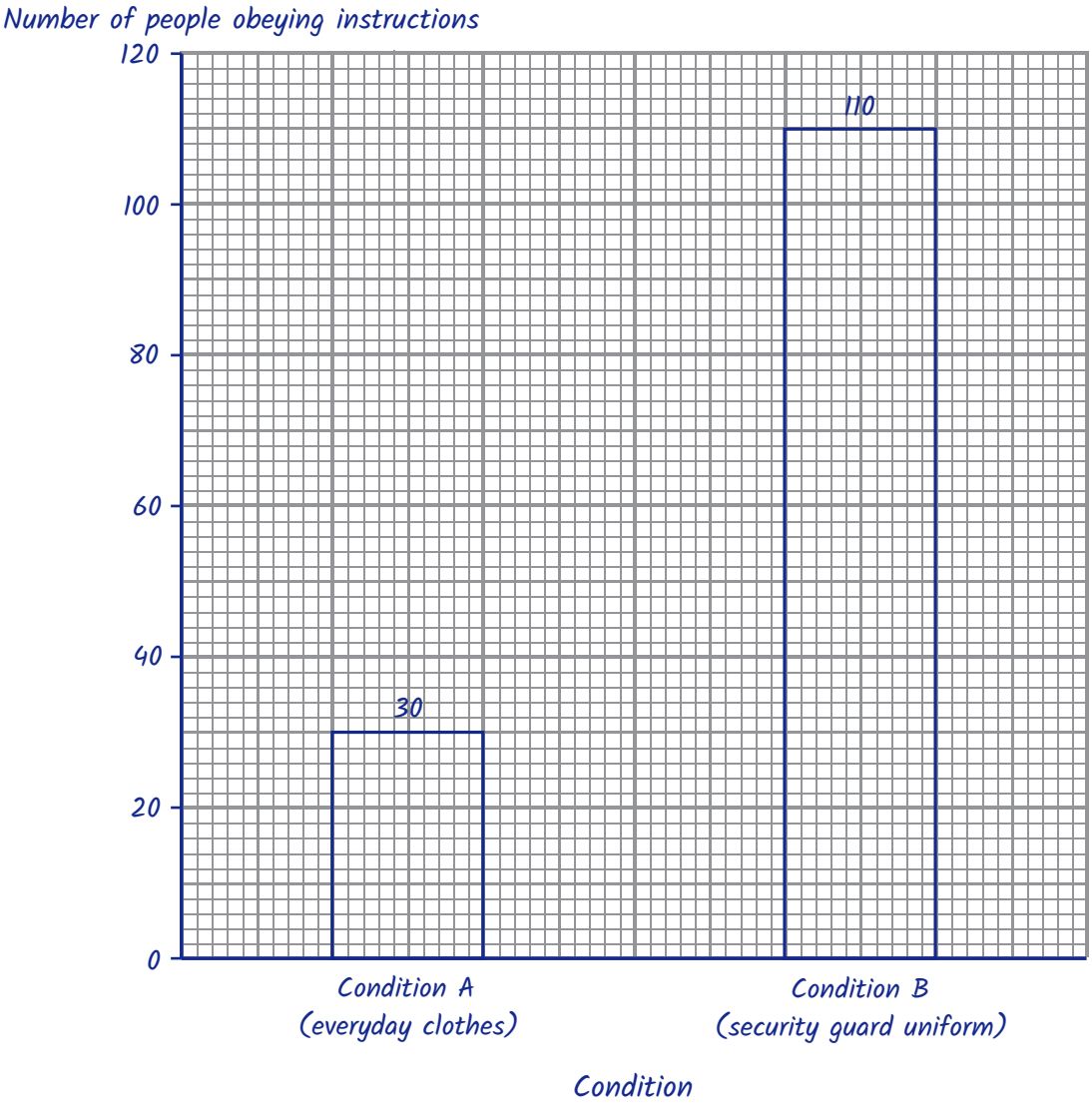
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(c) Draw an appropriate graph to show the number of people **obeying instructions** in each condition.

(3)

Title

Bar chart to show the number of people obeying instructions in each condition



(Total for Question 1 = 6 marks)

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2 Milgram (1963) conducted research into obedience using a laboratory experiment. His original study was conducted at Yale University with male participants recruited using an advert in a local newspaper.

(a) Explain **three** ethical issues with Milgram's original study.

(6)

1 *Milgram gave participants the right to withdraw at the start, but the experimenter used verbal prods such as "you have no other choice, you must go on" during the study. This made it very difficult for participants to actually withdraw, so the right to withdraw was not fully given, which was unethical.*

2 *Informed consent was not obtained, as participants were deceived and told the study was about the effect of punishment on learning, not obedience, and that the shocks were real. This was unethical, but it was necessary to reduce demand characteristics and gather valid obedience data.*

3 *Participants were not protected from harm, as many showed severe distress such as sweating, trembling and nervous laughter, and three had seizures. However, after debriefing 84% said they were glad to have taken part, so they felt it was worthwhile despite the distress at the time.*

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(b) Milgram (1963) conducted several variations of his original study in order to investigate the impact of situational factors on obedience to authority figures.

State **two** conclusions made by Milgram following his variation studies.

(2)

1 *Obedience decreases when the authority figure is not in close proximity, for example when orders were given by telephone.*

2 *Obedience decreases when the prestige or status of the authority figure is lower, such as in a run-down office building rather than Yale University.*

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(c) Milgram (1963) explained obedience to authority using agency theory.

Explain **one** strength and **one** weakness of agency theory as an explanation of obedience to authority.

(4)

Strength

Agency theory, including the idea of the agentic state and blind obedience, is supported by research. Burger (2009) replicated Milgram's study and found that most participants continued to follow instructions and give shocks up to 150 volts, which shows people do obey authority figures and shift responsibility to them.

Weakness

The theory relies on people entering an agentic state when they are in the presence of an authority figure. This means it cannot explain obedience when the authority figure is distant, such as people following the law when no police officers are nearby, so it is not a complete explanation.

(Total for Question 2 = 12 marks)

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3 Psychologists claim there are different types of conformity, including compliance and internalisation. A teacher claims that her students conform to the school's expectations of punctuality, tidy uniform, good attendance and handing in homework because they have internalised these. However, her friend argues that the student behaviour is more likely to be due to compliance with the school's expectations and not internalisation.

Discuss how compliance **and** internalisation can explain the behaviour of students in the school.

You must refer to the context in your answer.

(8)

Internalisation is the deepest type of conformity, where a person changes their behaviour to match the group norm because they genuinely agree with the group. The group's beliefs become part of the individual's own belief system, so the change happens both publicly and privately and lasts even when the group is not present. Compliance is when a person changes their public behaviour to fit in with the group, often to gain approval or avoid rejection, but privately they still disagree, so their personal beliefs do not change.

The teacher's view can be explained by internalisation. Students may genuinely believe that being punctual and handing in homework on time are important for their own learning and future, so their personal beliefs about punctuality have changed to match the school's expectations. They may also agree that wearing a tidy uniform is appropriate, so they follow the school norms because they value them, not because they are being watched.

However, the friend's view can be explained by compliance. Students may wear a tidy uniform because the majority of their peers do and they want to fit into their peer group and avoid standing out. They may attend regularly and hand in homework only to avoid detentions or disapproval from teachers, while privately disagreeing with the school's rules. This would be shown if students stop wearing the uniform properly or arrive late as soon as they leave school or when teachers are not checking.

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In reality, both types of conformity are likely to explain the students' behaviour. Some expectations, such as good attendance and homework, may be internalised by students who value education, whereas others, such as tidy uniform, are more likely to be compliance, as students may not see why it matters. The best way to tell them apart is whether the behaviour continues when there is no pressure from the school or peers, as only internalised behaviour would persist.

(Total for Question 3 = 8 marks)

TOTAL FOR SECTION A = 26 MARKS

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SECTION B

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

4 As part of your studies in cognitive psychology, you will have conducted a practical investigation.

(a) Describe how you operationalised the variables in your practical investigation.

(2)

The independent variable was interference: participants recalled trigrams with no interference, and again after counting backwards in threes from a three-digit number for 18 seconds. The dependent variable was the number of trigrams correctly recalled out of 15.

(b) Give **two** conclusions you reached in your practical investigation.

(2)

1 *Recall of trigrams was higher with no interference and decreased with interference, so short-term memory is disrupted when rehearsal is prevented.*

2 *There was no difference between male and female participants in the number of trigrams recalled, so gender does not affect short-term memory recall.*

(c) Explain **one** way demand characteristics were controlled in your practical investigation.

(2)

We used deception, telling participants that the experiment was about learning rather than memory and interference. This meant they were less likely to guess that the study was about interference in short-term memory and change their behaviour, for example by purposely answering incorrectly in the interference condition.

(Total for Question 4 = 6 marks)

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5 In cognitive psychology, you will have learned about the following contemporary study in detail:

- **Schmolk et al (2002)** Semantic knowledge in patient HM and other patients.

(a) State the aim of Schmolk et al's (2002) study.

(1)

To investigate the effects of damage to the medial temporal lobe and the anterolateral temporal cortex on semantic knowledge, by comparing HM with other amnesic patients and healthy controls.

(b) State **three** conclusions drawn by Schmolk et al (2002) from their study.

(3)

1 *Deficits in semantic knowledge are most likely related to cortical damage lateral to the medial temporal lobe.*

2 *Patients with damage limited to the hippocampal formation performed normally in every respect on tests of semantic knowledge.*

3 *HM's language deficits are more likely related to his interrupted education than to his brain damage.*

(Total for Question 5 = 4 marks)

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6 A group of researchers are testing whether the number of words that can be recalled from a list is influenced by gender. One group of participants is female and the other group of participants is male. Participants have to learn and recall words from a list of 50. Each participant is given a recall score out of 50.

(a) Give a fully operationalised non-directional (two-tailed) hypothesis for this study.

(2)

There will be a difference between the number of words recalled from a list of 50 by male participants and female participants.

(b) The results of this study are shown in **Table 2**.

Male participants Number of words recalled	Female participants Number of words recalled
21	25
20	36
18	23
18	21
25	19
6	9
22	20
31	24
18	24
17	23
20	27

Table 2

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Calculate the median score for male participants.

(1)

Space for calculations

Male scores in order: 6, 17, 18, 18, 18, 20, 20, 21, 22, 25, 31

n = 11, so the median is the 6th score

Median = 20

Median score of words recalled by male participants *20*

(c) Explain why the median is an appropriate measure of central tendency for the data in this study.

(2)

The data contains extreme scores, such as 6 and 31 for males and 9 and 36 for females, so it is skewed. The median uses only the middle score, so it is not distorted by these extreme scores and gives a more representative average than the mean.

(Total for Question 6 = 5 marks)

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7 Psychologists can use the experimental method for investigations. This is particularly the case in much of the research carried out in cognitive psychology. However, case studies can provide more in-depth detail about memory.

Justify the use of the experimental method instead of case studies in cognitive psychology.

Experiments testing memory, such as recall of word lists, use strict controls over extraneous variables, for example the same list, timings and instructions for all participants. Case studies of memory, such as HM, are unique, so variables such as the extent of brain damage and life experiences cannot be controlled. This means experiments can establish cause and effect, so the data more accurately measures what causes differences in memory, and the procedure can be repeated to test reliability.

(Total for Question 7 = 3 marks)

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8 Baddeley and Hitch (1974) used the working memory model to explain processing and storing of cognitive information.

Evaluate the working memory model as an explanation of memory.

(8)

The working memory model (Baddeley and Hitch, 1974) is an explanation of short-term memory that replaced the idea of a single short-term store with a system of separate components. The central executive is a control system with limited capacity that directs attention to incoming stimuli and delegates tasks to two slave systems. The phonological loop processes sound and speech-based information, using a phonological store and an articulatory control process for inner rehearsal. The visuospatial sketchpad processes visual and spatial information. Baddeley (2000) later added the episodic buffer, which links information between the components and long-term memory.

A strength is that there is evidence for separate components. Shallice and Warrington (1970) studied patient KF, who had brain damage and impaired verbal short-term memory but unaffected visuospatial short-term memory. This suggests that the phonological loop and visuospatial sketchpad are separate systems, which a single short-term store cannot explain. Dual-task studies also show that people can do a verbal and a visual task at the same time with little interference, but not two verbal tasks.

Another strength is that the model has practical applications. Baddeley et al (1988) found that the phonological loop is needed for learning new words and language development, and the model has been used to help children with attention problems, dyslexia and memory impairments, so it is useful in society.

However, there is little evidence for the central executive and its role is vague. It is not clear how it allocates attention or what its capacity is, so it is hard to test and is highly subjective.

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Also, the model only explains short-term memory and does not deal with long-term memory, so it cannot give a complete explanation of human memory. Evidence from case studies such as KF also comes from unique brain-damaged individuals, so it may not generalise to normal memory.

In conclusion, the working memory model is a strong explanation of short-term memory, as it is well supported by case studies and dual-task research and has useful applications. However, because the central executive is poorly defined and long-term memory is not explained, it is only a partial explanation of memory as a whole.

(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 Two groups of people live on opposite sides of a small town. One group call themselves 'The Crew' and the other group call themselves 'The Squad'. They are often fighting over an area in the town that each group claims as its own territory. Each group leader arranges meetings with their members outlining plans to increase their power. The group members do not question these plans.

Evaluate how effectively social power theory can explain group behaviour.

You must refer to the context in your answer.

(12)

Social power theory (French and Raven, 1959) explains how leaders influence group members through different bases of power. Legitimate power comes from a recognised position or role, reward power from the ability to give rewards, coercive power from the ability to punish, expert power from skill and knowledge in a specific area, and referent power from being attractive, admired or having a right to respect. Raven later added informational power, from controlling information others need.

The theory can explain the behaviour of The Crew and The Squad. Each leader may have referent power, as members see them as having a right to be respected because they lead the group to benefit its members. The leaders may also have expert power, as they appear knowledgeable in the meetings about the territory and how to increase the group's power. Members may fear the consequences of non-compliance, such as being thrown out of the group or punished, so the leaders also hold coercive power, and they may reward loyal members with status. This explains why members do not question the plans and why both groups keep fighting over the area, as leaders use their power to direct them.

There is evidence that power bases affect behaviour. Bickman (1974) found that people were more likely to obey a confederate dressed as a security guard than one in everyday clothes, showing that legitimate power from a uniform increases obedience. Milgram (1963) also showed

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that individuals follow authority figures, with 65% of participants going to 450 volts when instructed by the experimenter, which supports the idea that members obey leaders seen as legitimate. However, these studies focus on individuals obeying one person, so they do not fully explain whole group behaviour such as two groups fighting over territory.

A weakness is that coercive power requires surveillance. If the leaders are not always present to monitor members, their power should decrease, yet the groups still behave as a unit, so social power theory cannot explain all aspects of group behaviour. Also, the power bases are difficult to operationalise and measure, as they overlap and depend on how members perceive the leader, so the theory is hard to support with reliable evidence.

Other theories may explain the context better. Agency theory (Milgram, 1963) suggests members give up their free will and enter an agentic state, following the orders of the leaders as authority figures and seeing them as responsible, which explains why the plans are not questioned. Deindividuation, supported by Festinger et al (1952), suggests that when people are part of a large group they lose self-awareness and accountability and commit destructive acts, which may better explain behaviour during the actual fighting. Social identity theory (Tajfel and Turner, 1979) explains how members categorise themselves as The Crew or The Squad and favour their in-group, and realistic conflict theory, supported by Sherif et al (1954), explains hostility when groups compete for a limited resource, such as the territory in the town.

In conclusion, social power theory is effective at explaining why members follow their leaders' plans without question, as the leaders hold referent, expert and coercive power. However, it focuses on the leader rather than the group, so it cannot fully explain the conflict between the groups, which is better explained by deindividuation, social identity and competition for territory. It is therefore only a partial explanation of group behaviour.

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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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