Please check the examination details below before entering your candidate information

Candidate surname: StemUp Model Solution | Other names:

Pearson Edexcel
International Advanced Level

Centre Number | Candidate Number

Monday 13 May 2019

Afternoon (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.

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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 BEGINS ON THE NEXT PAGE.

SECTION A

SOCIAL PSYCHOLOGY

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

1 Milgram conducted research into obedience, including variation studies.

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

(2)

In Experiment 13 the experimenter was called away and an ordinary man (an accomplice posing as another participant) suggested raising the shock one level each time. Only 20% of participants (4 out of 20) obeyed him to the maximum 450 volts, so 80% defied him. Obedience therefore dropped sharply from 65% in Milgram's original baseline study to 20% when the orders came from an ordinary man with no legitimate authority.

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

(4)

Strength

The procedure was standardised, so it could be replicated to test the reliability of the findings. For example, the accomplice was always given the job of recording times at the experimenter's desk, the experimenter was always called away by a rigged phone call, and the learner's protests were the same pre-recorded tape, so every participant experienced the same situation and the drop in obedience can be put down to the ordinary man giving orders.

Weakness

Participants were deceived, so the study has questionable ethics. They were not told that the experimenter, the learner and the ordinary man were all accomplices, or that the shocks were not real, so they were lied to and could not give fully informed consent. Many also showed signs of stress, such as sweating and trembling, so they were not fully protected from psychological harm.

(Total for Question 1 = 6 marks)

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2 A high school was concerned about how little fruit its students were consuming on a weekly basis. The high school wanted a health expert to visit the school to speak to the students. It invited Doctor Foster to come to the school. He gave a talk to students about the importance of healthy eating. Doctor Foster instructed the students to eat more fruit.

Ten students' names had been chosen from a hat from each year group to report on their consumption of fruit. The school gave the students a questionnaire to record the amount of fruit they consumed before and after Doctor Foster's visit to the school.

(a) State a directional (one-tailed) alternative hypothesis for the high school study.

(2)

Students at the high school will eat more pieces of fruit per week after Doctor Foster's talk about healthy eating than they ate per week before his talk.

(b) (i) Identify the sampling technique used in the high school study.

(1)

Random sampling (the students' names were drawn from a hat).

(ii) Explain **one** strength of using the sampling technique you identified in (b)(i) for the high school study.

(2)

Random sampling has low bias compared with other sampling techniques, because every student in each year group had an equal chance of having their name chosen from the hat, so the school could not choose students who already ate a lot of fruit. This makes the sample of 50 students more likely to be representative of all the students at the high school, so the results can be generalised to the whole school.

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The mean fruit consumption for each year group from the high school study is shown in **Table 1**.

Year group	Mean fruit consumption per week before Doctor Foster's talk	Mean fruit consumption per week after Doctor Foster's talk
A	5.6	7.1
B	8.4	14.1
C	12.2	21
D	11.4	23.5
E	10.5	17.7

Table 1

(c) Calculate the mean consumption of fruit for the high school after Doctor Foster's talk.

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

(1)

Space for calculations

$(7.1 + 14.1 + 21 + 23.5 + 17.7) \div 5$

$= 83.4 \div 5 = 16.68$

= 16.7 pieces of fruit per week (1 d.p.)

Mean consumption of fruit for the high school after Doctor Foster's talk ..... 16.7 .....

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The high school displayed the fruit consumption of sampled students after Doctor Foster's talk on a graph, which is shown in **Figure 1**.

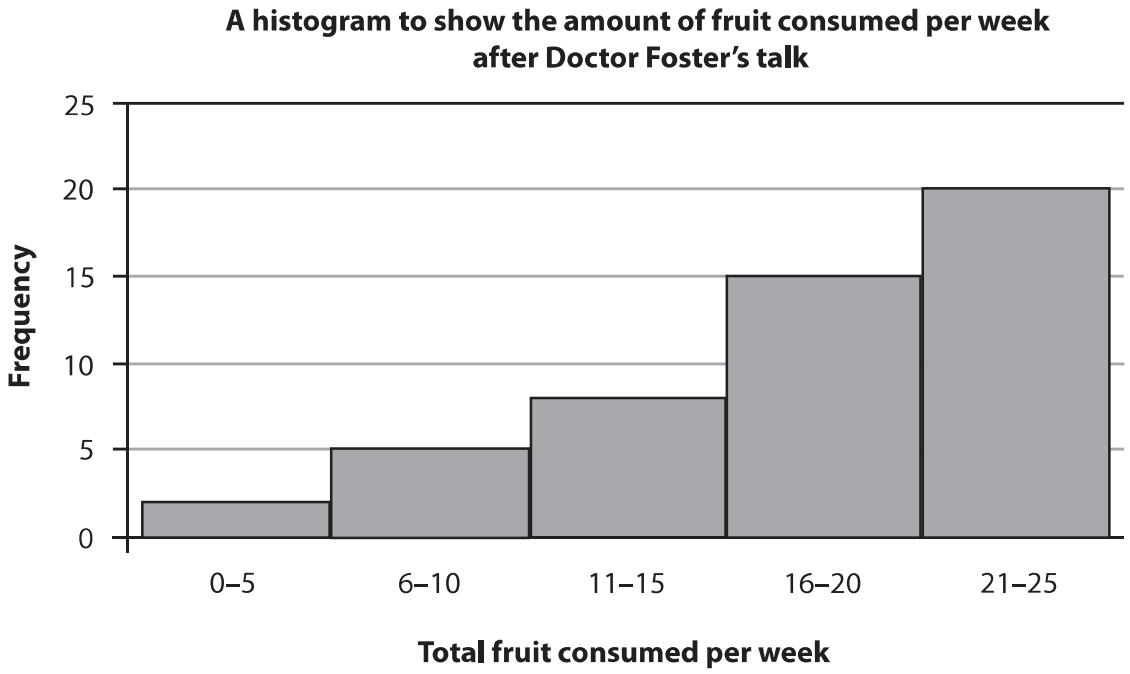


Figure 1

(d) Explain **one** conclusion that could be made from the graph shown in **Figure 1**.

(2)

The histogram has a negative skew: most of the sampled students are in the highest categories, with 20 students eating 21 to 25 pieces of fruit per week and 15 eating 16 to 20, while only 2 ate 0 to 5. This suggests that after Doctor Foster's talk most students were eating a lot of fruit, so a health expert speaking to students about healthy eating may increase their fruit consumption.

(Total for Question 2 = 8 marks)

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3 Explain the influence of culture on conformity.

(4)

Collectivist cultures, which value the needs of the group over the individual, tend to conform more than individualist cultures such as the USA and UK, which value independence. Bond and Smith (1996) carried out a meta-analysis of 133 Asch-type studies from 17 countries and found that conformity was higher in collectivist cultures such as Fiji than in individualist cultures such as the USA.

However, people in collectivist cultures may not be more conformist in general, only towards their in-groups. Triandis et al. (1988) found that Japanese students reported conforming less than US students in general, because the Japanese students separated in-groups from out-groups more sharply, so culture affects who people conform to as well as how much they conform.

(Total for Question 3 = 4 marks)

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4 In your studies of social psychology you will have covered the contemporary study by Burger (2009).

Evaluate the contemporary study by Burger (2009) in terms of reliability and validity.

(8)

Burger (2009) carried out a partial replication of Milgram's obedience study in a laboratory at Santa Clara University. Participants were men and women aged 20 to 81 with different levels of education and ethnic backgrounds. They were screened to remove anyone who might be vulnerable to stress or who knew about Milgram's research. The procedure was stopped at 150 volts, the point where the learner first protests, and 70% of participants in the base condition were prepared to continue past 150 volts.

The study had high reliability because it used a standardised procedure. The same experimenter read the same script and used the same prods, the learner's protests were the same recording, and all participants were paid $50. This means the study can be replicated to check whether the findings are consistent. Reliability is also supported because the results were consistent with Milgram's original research in the 1960s, as Burger's 70% was only a little lower than the 82.5% of Milgram's participants who continued past 150 volts, showing obedience levels are stable over time.

The sample had good population validity because it varied in gender, age, education and ethnicity, so the findings can be generalised to the US population more than Milgram's all-male American sample. However, participants were volunteers who answered adverts and anyone anxious was screened out, so the sample may not represent everyone.

Internal validity was high because the controlled laboratory setting meant extraneous variables were kept the same, so obedience was caused by the experimenter's orders. However, the study lacks ecological validity because the participants were in an unfamiliar, artificial setting giving

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shocks to a stranger, so the "teacher" may not have acted as they normally would. Stopping at 150 volts also means we cannot be sure how many would have gone on to 450 volts, although Milgram found that most participants who passed 150 volts continued to the end.

Overall, Burger's study is a reliable study with good population and internal validity, but its ecological validity is limited by the artificial laboratory task, so its findings may not fully reflect obedience in real life.

(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 Bartlett's (1932) War of the Ghosts study.

(a) State **one** aim of Bartlett's (1932) War of the Ghosts study.

(1)

To see whether memory of an unfamiliar story (a Native American folk tale) is affected by prior knowledge, that is, whether people reconstruct the story to fit their own schemas.

(b) State **two** results of Bartlett's (1932) War of the Ghosts study.

(2)

1 *Participants shortened the story and left details out, for example seven of the participants omitted the title of the story.*

2 *Unfamiliar content was transformed using their schemas to fit English culture, for example 'canoes' changed to 'boats' and 'hunting seals' changed to 'fishing'.*

(c) Explain **one** way Bartlett's (1932) War of the Ghosts study could be improved.

(2)

Bartlett could have kept the intervals between hearing the War of the Ghosts story and recalling it the same for all participants, instead of letting them recall it at different times. This would have increased internal validity, because the different intervals before recall would no longer influence the amount of distortion, so any changes to the story could be put down to schemas.

(Total for Question 5 = 5 marks)

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6 Zulikhat was investigating working memory and set up an experiment to test the difference in a single task and a dual task for participants.

Zulikhat recruited 10 of her friends and gave them a single task (condition A) and then a dual task (condition B). Condition A involved a single reasoning task. Condition B involved a dual task where participants had to do the same reasoning task but also read a list of numbers at the same time.

Zulikhat recorded how long it took participants to complete condition A and condition B using a stopwatch.

(a) State how the dependent variable (DV) has been operationalised in Zulikhat's study.

(1)

The DV was operationalised as the time taken, in seconds, to complete the single task (condition A) and the dual task (condition B), measured with a stopwatch.

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The results of Zulikhat's study are shown in **Table 2**.

Participant	Condition A Time taken (in seconds) to complete single task	Condition B Time taken (in seconds) to complete dual task
A	100	228
B	120	185
C	150	201
D	124	210
E	132	165
F	129	224
G	119	200
H	147	210
I	123	165
J	156	212
Mean	**130**	**200**

Table 2

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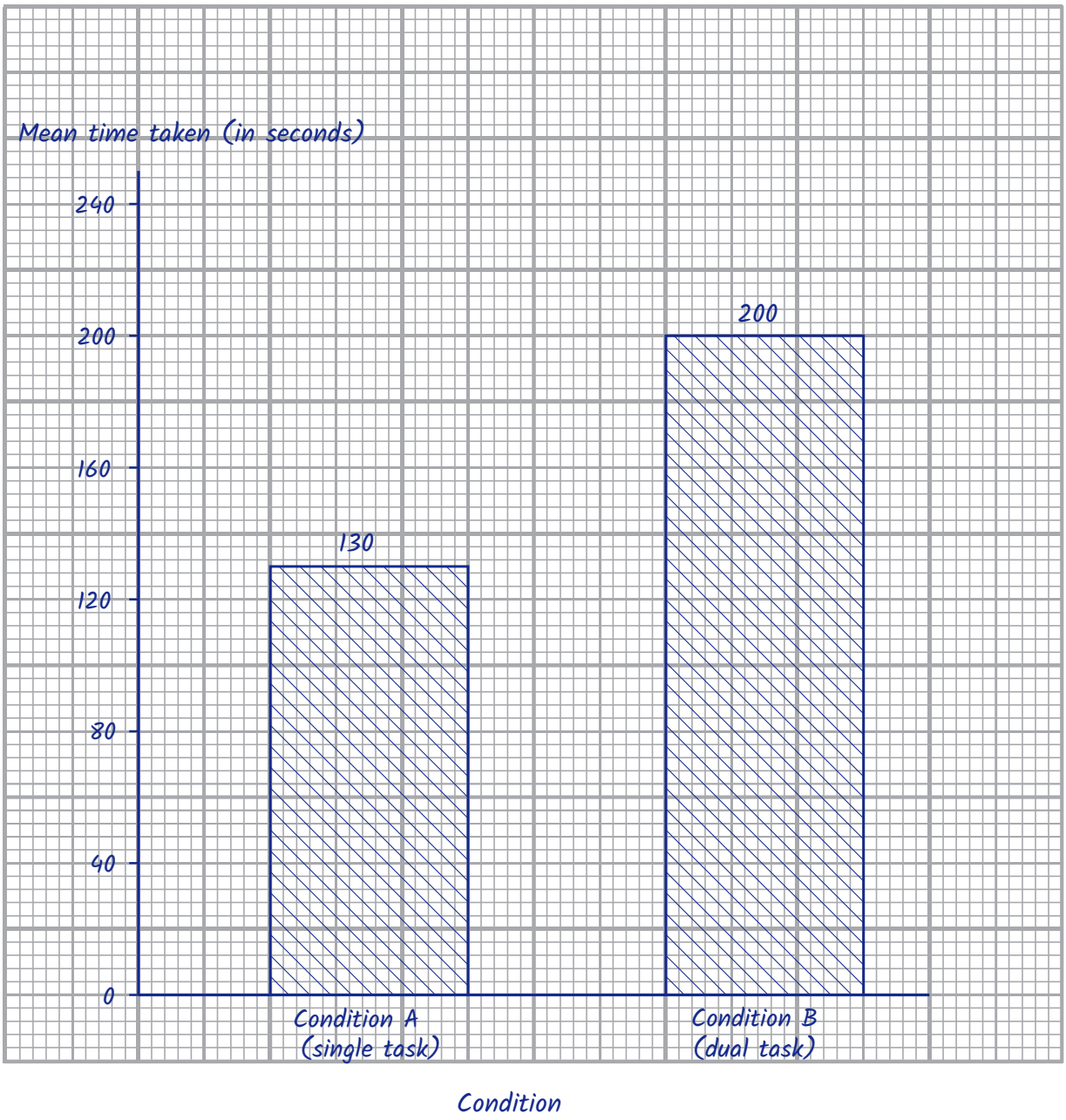
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(b) Draw an appropriate graph to represent the mean time for condition A and the mean time for condition B in Zulikhat's experiment.

(3)

Title

A bar chart to show the mean time taken (in seconds) to complete a single task (condition A) and a dual task (condition B)



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(c) Zulikhat carried out a Wilcoxon signed ranks test on her data to calculate statistical significance for the difference in time taken to complete the single task and the dual task. The calculated (T) value was 8 (T=8) for a two-tailed test at p=0.05 with N=10.

Explain whether Zulikhat's result is significant or not.

The critical value table can be found in the formulae and statistics table at the front of the paper.

(2)

The critical value for N = 10 in a two-tailed test at p = 0.05 is 8, which is equal to the calculated value of T = 8. For the Wilcoxon test the calculated value must be equal to or less than the critical value, so the result is significant. There was a significant difference between the time taken to do the single task and the dual task, so the null hypothesis can be rejected.

(d) Explain how **one** participant variable could have affected Zulikhat's study.

(2)

The participants' working memory ability was not assessed before the study. Some of Zulikhat's friends may already have had difficulties with their working memory, or be less practised at reasoning tasks, so they would have been much slower on the dual task because of their prior ability rather than the dual task itself, which reduces the validity of the results.

(Total for Question 6 = 8 marks)

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7 The multi-store model of memory was proposed by Atkinson and Shiffrin (1968).

(a) Define the term 'encoding' as it is used in the multi-store model.

(1)

Encoding is the process of changing information into a form (code) that can be stored in memory, for example acoustic encoding in STM and semantic encoding in LTM.

(b) Explain **two** strengths of Atkinson and Shiffrin's (1968) multi-store model of memory.

(4)

1 *Research evidence supports the idea that STM and LTM are separate stores. Glanzer and Cunitz (1966) found a primacy-recency effect in free recall of word lists: words at the beginning of the list were remembered well as they had been rehearsed into LTM, and words at the end were remembered well as they were still in STM, showing two different stores as the model proposes.*

2 *It is supported by evidence for the role of rehearsal. Peterson and Peterson (1959) found that when rehearsal was prevented by counting backwards in threes, more than 90% of trigrams were forgotten after 18 seconds. This supports the multi-store model's claim that information must be rehearsed to stay in STM and be transferred to LTM.*

(Total for Question 7 = 5 marks)

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8 Zahra and her friend Namra were opening a new account in their local bank. While they were there a person entered and pointed something at the cashier and demanded money. The person then left the bank with the money.

The police arrived shortly after and asked Zahra and Namra what they had witnessed. Zahra said the person had brown hair and pointed a gun at the cashier, whereas Namra said the person had black hair and pointed a knife at the cashier.

Discuss how reconstructive memory could explain Zahra and Namra's recall of the incident.

You must make reference to the context in your answer.

(8)

Bartlett (1932) proposed that memory is not like a video recorder that stores an exact copy of an event. Instead, memories are reconstructed each time we recall them, using schemas, which are mental frameworks of knowledge about people, objects and events built from past experience or from other sources such as TV and books. When we recall an event we fill in gaps with what our schemas suggest should have happened, so memories usually contain errors.

This can explain why Zahra and Namra gave different accounts. The robbery was quick and they only saw the person point "something" at the cashier, so each may have filled in the missing detail using her own schema of a bank robbery. If Zahra's schema, perhaps from films, includes robbers carrying guns, she would recall a gun, while Namra's schema may include a knife. This is like Bartlett's War of the Ghosts study, where participants changed unfamiliar details such as 'canoes' into 'boats' to fit what they expected.

Stereotypes can also affect the accuracy of memory. Namra may hold a stereotype of what a bank robber looks like, for example with black hair, so she reconstructed the person's appearance to match it, whereas Zahra's different expectations led her to recall brown hair. Their past experiences of bank robberies, such as news reports, could also create reconstructive errors when they recall this more recent event.

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Reconstruction may also have happened after the event. Zahra and Namra may have talked about the robbery before the police arrived, and the police questions could have added information, as Loftus and Palmer (1974) showed that the wording of a question can change what a witness recalls. Each time they recalled the incident their memory could have been changed further.

However, reconstructive memory may not be the only explanation. The two friends may have been standing in different places and so actually saw the person from different angles, and the stress of the robbery may have made it hard to encode details at all. Also, schemas are hard to measure directly, so we cannot be sure that their schemas caused the differences. Overall, reconstructive memory gives a good explanation of why both women recalled confident but different details that fit their expectations of a robber, but other factors at the time of encoding may also have played a part.

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(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 Patients A, B and C attend a memory clinic and participate in a series of memory recall tasks.

- Patient A performs well on a recall task where digits are displayed on a screen, but does not perform well on a recall task where digits are read aloud.
- Patient B performs well on a recall task with short words, but does not perform well on a recall task with long words.
- Patient C performs well on a recall task where a word list is displayed on a screen and read aloud, but does not perform well on a recall task where two word lists are displayed on a screen.

Evaluate how well the working memory model can account for the patients' performance in the recall tasks.

You must make reference to the context in your answer.

(12)

Baddeley and Hitch (1974) proposed the working memory model, which says that STM is not a single unitary store but a system with several components. The central executive controls attention and directs information to the slave systems. The phonological loop holds speech-based information: the phonological store (inner ear) holds sounds and the articulatory control process (inner voice) rehearses words, holding about as much as can be said in 1.5 to 2 seconds. The visuo-spatial sketchpad holds and manipulates visual and spatial information, and the episodic buffer, added later, links information between the stores and LTM.

The model can explain Patient A, who recalls digits well when they are displayed on a screen but poorly when they are read aloud. This suggests their phonological loop, especially the phonological store, is impaired, while the visual route through the visuo-spatial sketchpad is intact. This shows there are different types of STM, which the multi-store model cannot explain as it sees STM as one store. It is supported by the case of KF (Shallice and Warrington, 1970), whose STM for auditory verbal information was poor but whose memory for visual information was much better.

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Patient B recalls short words well but not long words. The model explains this through the word length effect: as the phonological loop can only hold what can be said in about 2 seconds, fewer long words fit into the loop because they take longer to say. Baddeley et al. (1975) found that participants remembered more words from lists of one-syllable words than from lists of five-syllable words, which supports this explanation of Patient B.

Patient C performs well when a word list is shown on a screen and read aloud, but poorly when two word lists are shown on a screen. When information comes in different forms it can be shared between different slave systems, so there is little interference, but two similar tasks compete for the same limited-capacity component, so performance drops. Klauer and Zhao (2004) support this, as participants performed better when doing a visual and a spatial task together than when doing two visual tasks.

However, there are weaknesses. Much of the evidence comes from tasks such as recalling word lists in laboratories, which are artificial and lack ecological validity, so the credibility of the model can be questioned. Case studies such as KF involve one brain-damaged person, so they may not generalise and we do not know how his memory worked before the damage. The role of the central executive is also vague, as the model does not explain clearly how it allocates tasks, so it is hard to test. The model also focuses only on STM and does not really explain LTM, so it is not a complete explanation of memory, and it cannot fully explain why each patient has these problems in the first place.

Overall, the working memory model accounts well for all three patients, because separate components with limited capacity explain why each patient struggles with one type of task but not another, and this is supported by research such as Baddeley et al. (1975). However, as the

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evidence relies on artificial tasks and a vague central executive, it is a useful but incomplete explanation of the patients' performance.

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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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