

Section E Research methods

Answer **all** questions in the spaces provided.

Total for this question: 20 marks

5 A psychologist conducted an experiment to find out if people reacted more quickly to a ringing bell or to a flashing red light. Each participant sat in front of a machine which could make a sound like a ringing bell, or could flash a red light. The participant had to press a button on the machine immediately when they:

- heard a bell ring
- or**
- saw a red light flash.

The machine recorded their reaction times in milliseconds.

5 (a) (i) Identify the independent variable in this experiment. **[1 mark]**

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5 (a) (ii) Identify the dependent variable in this experiment. **[1 mark]**

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5 (b) Write a suitable hypothesis for this experiment. **[2 marks]**

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Each participant took part in both conditions of the experiment.

- In Condition A, each participant had to react once to a ringing bell.
- In Condition B, each participant had to react once to a flashing red light.

5 (d) The psychologist used counterbalancing in this experiment. Outline how this might have been done.

[2 marks]

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The results of the experiment are shown in **Table 1** below.

Table 1 Time taken in milliseconds to react to the ringing bell (Condition A) and to the flashing red light (Condition B).

Participant number	Condition A (ringing bell)	Condition B (flashing red light)
1	21	17
2	14	14
3	12	17
4	14	14
5	12	12
6	11	13
7	14	12
8	14	18
9	14	19
10	14	14
Total	140	150



5 (e) (i) The mean time for Condition A is:
(Tick the correct box.)

[1 mark]

140 milliseconds	<input type="checkbox"/>
70 milliseconds	<input type="checkbox"/>
14 milliseconds	<input type="checkbox"/>

5 (e) (ii) The mean time for Condition B is:
(Tick the correct box.)

[1 mark]

15 milliseconds	<input type="checkbox"/>
29 milliseconds	<input type="checkbox"/>
14.5 milliseconds	<input type="checkbox"/>

5 (e) (iii) What is the range for Condition A?

[1 mark]

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5 (e) (iv) What is the range for Condition B?

[1 mark]

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5 (f) Using the mean times **and** the ranges, what conclusions could the psychologist draw from this experiment? Explain your answer.

[4 marks]

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END OF QUESTIONS

