

**MONDAY, 6 JANUARY –
FRIDAY, 21 FEBRUARY 2025**

PHYSICS – Unit 3 (3420U30)

PRACTICAL ASSESSMENT

**INVESTIGATING THE RESISTANCE OF A
LIGHT DEPENDENT RESISTOR**

SECTION B

**1 hour, plus your additional time
allowance**

Surname _____

First name(s) _____

Centre Number _____

Candidate Number 0

ADDITIONAL MATERIALS

A calculator and your Section A exam paper.

INSTRUCTIONS TO CANDIDATES

Use black ink, black ball-point pen or your usual method.

Write your name, centre number and candidate number in the spaces provided on the front cover.

Answer ALL questions.

Write your answers in the spaces provided in this booklet. If you run out of space, use the additional pages at the back of the booklet, taking care to number the question(s) correctly.

(Turn over)

INFORMATION FOR CANDIDATES

The total number of marks available for this section of the task is 24.

The number of marks is given in brackets at the end of each question or part-question.

This task is in 2 sections, A and B.

You will have completed Section A in a previous lesson.

(Turn over)

For Examiner’s use only		
	Maximum Mark	Mark Awarded
Section B	24	

SECTION B

Answer ALL questions.

2 (a)(i)

**State the independent variable
in this experiment. [1 mark]**

**(ii) State the range of the independent
variable. [1 mark]**

(Turn over)

2 (a)(iii)

State the dependent variable in this experiment. [1 mark]

(iv) State the resolution of the ammeter. [1 mark]

(Turn over)

2 (a)(v)

**State ONE variable that was controlled in this experiment AND explain how it was controlled.
[2 marks]**

Controlled variable

How it was controlled

(Turn over)

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Voltage across lamp (V)	Current in LDR (mA)	Resistance of LDR (Ω)
8	10.0	875
9	14.0	625
10		468
11	23.2	377
12	28.5	307

2 (b) Rhian investigated the resistance of an LDR and obtained the results shown in the table on the opposite page.

(i) One current value is missing from the table.

1. Calculate the missing current using the equation:

$$\text{current in LDR} = \frac{\text{voltage across LDR}}{\text{resistance}}$$

where voltage across the LDR = 8.75 V. [2 marks]

current = _____ A

(Turn over)

2 (b)(i) continued

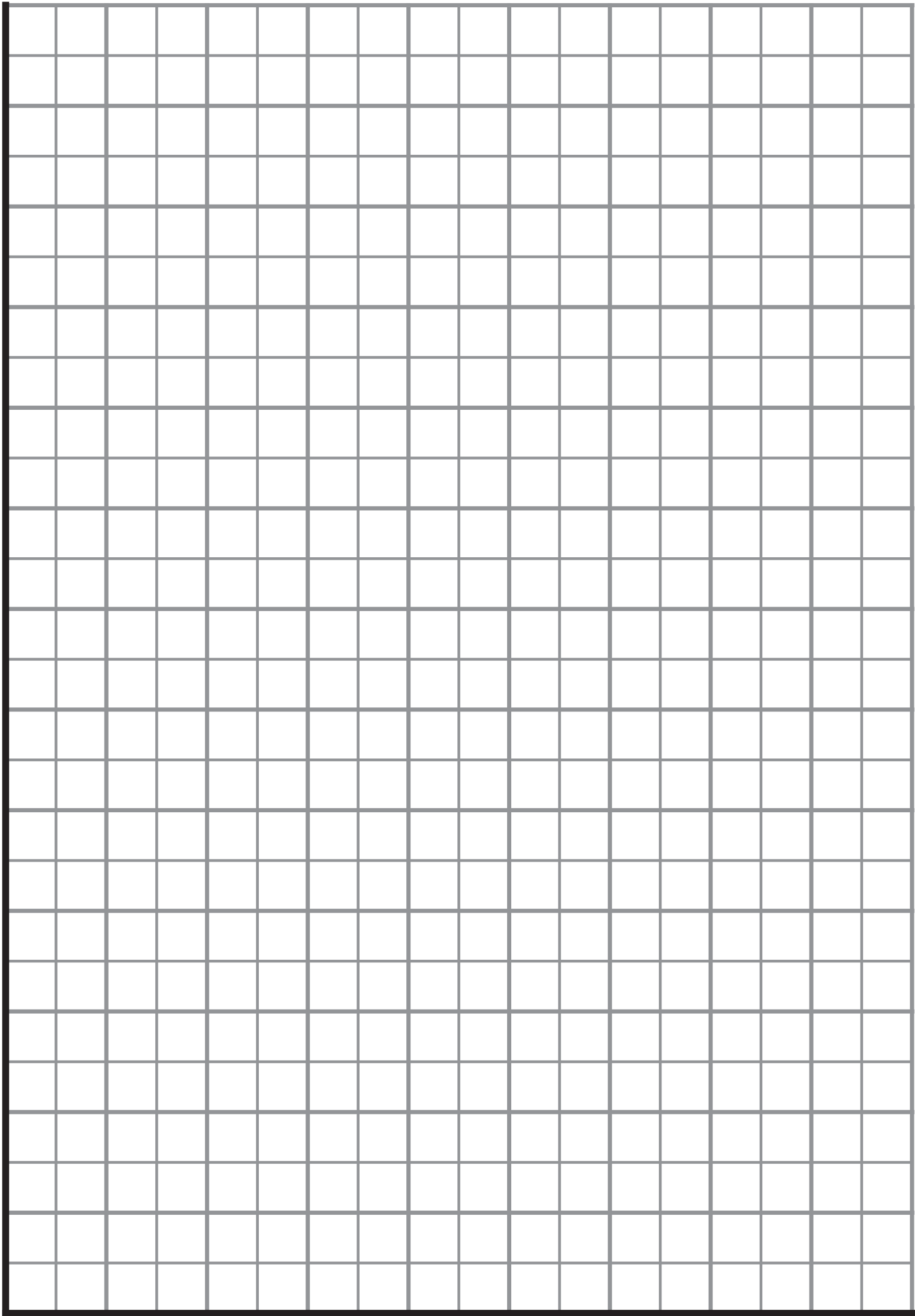
**II. Convert your answer in part I. into
MILLIAMPS (mA). [1 mark]**

current = _____ mA

(Turn over)

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2 (b)(ii)

Use Rhian's results to draw a graph of the resistance of the LDR (vertical axis) against the voltage across the lamp (horizontal axis) on the grid opposite.

START THE HORIZONTAL AXIS SCALE AT 8 V. [5 marks]

(c)(i) Use your graph to describe the relationship between the voltage across the lamp and the resistance of the LDR. [2 marks]

(Turn over)

2 (c)(ii)

Use your graph to determine the resistance of the LDR when the voltage across the lamp is 8.5 V. DRAW LINES ON YOUR GRAPH to show how you obtained your answer. [2 marks]

resistance = _____ Ω

(d)(i) Manon states that the level of light in the room from external sources was a source of inaccuracy in this experiment. Suggest how this inaccuracy could be reduced. [1 mark]

(Turn over)

2 (d)(ii)

**Evaluate the validity of the method
you used in Section A.**

**Do not make reference to light from
external sources in your answer.**

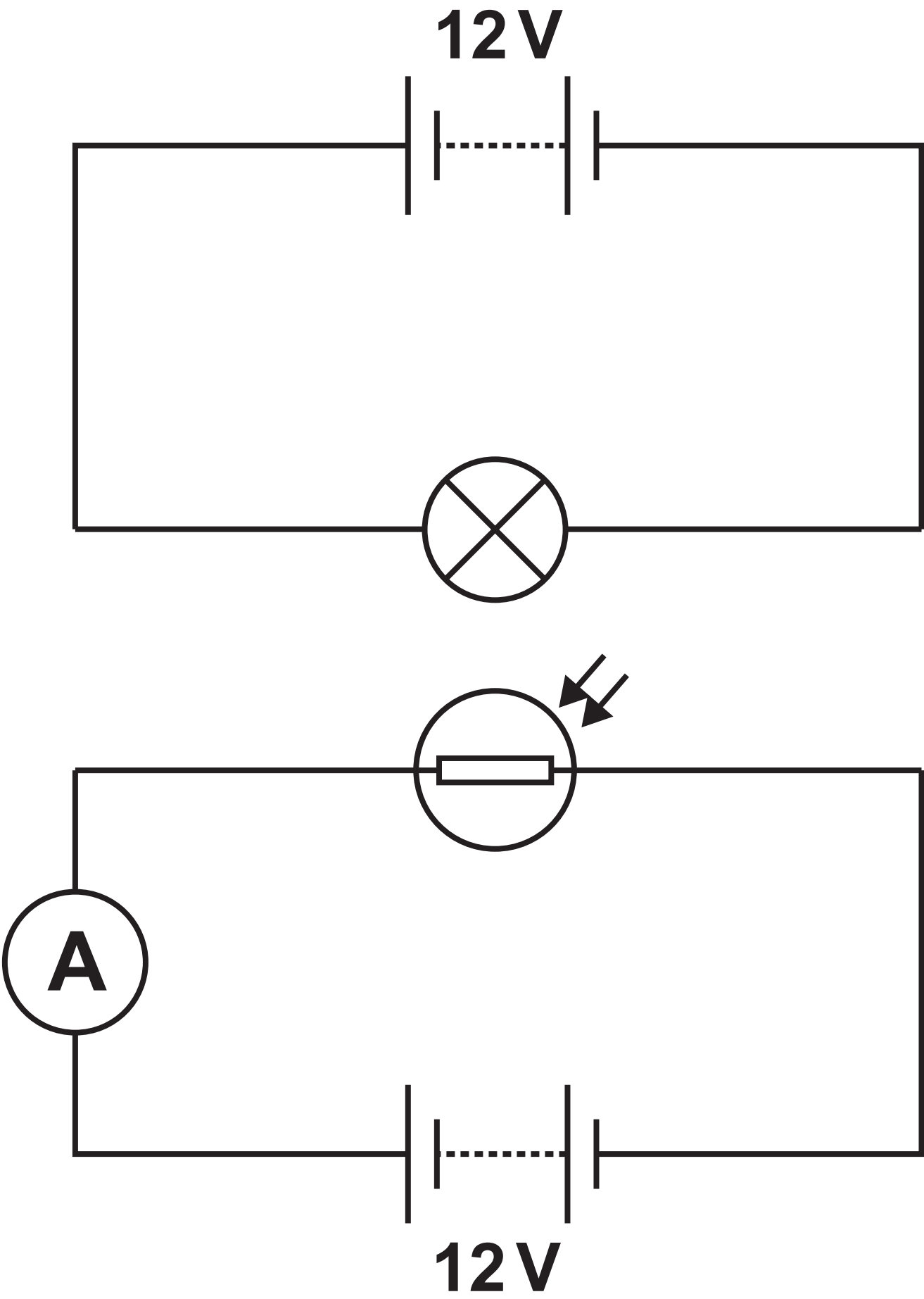
[2 marks]

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DIAGRAM



2 (d)(iii)

Another group of students want to investigate the relationship between light intensity and current, but they do not have a variable power supply to use.

The following apparatus is available.

2 × 12 V power supply

1 × LDR

1 × clamp and stand

1 × ammeter

1 × 12 V, 24 W filament lamp

1 × 30 cm ruler

Describe a method they could use.

You will not be expected to carry out this experiment. [3 marks]

continue answer on next page

(Turn over)

Question number	Additional page, if required. Write the question numbers in the left-hand margin.

[illegible]

[illegible]

Question number	Additional page, if required. Write the question numbers in the left-hand margin.

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