Surname	Centre Number	Candidate Number
First name(s)		0

GCSE

S25-3420U30-1B

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

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

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01

ADDITIONAL MATERIALS

A calculator and your Section **A** exam paper.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** questions.

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

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.

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SECTION B

Answer **all** questions.

2. (a) (i) State the independent variable in this experiment. [1]

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

.....

(iii) State the dependent variable in this experiment. [1]

.....

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

.....

(v) State **one** variable that was controlled in this experiment **and** explain how it was controlled. [2]

Controlled variable .....

How it was controlled .....

.....

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(b) Rhian investigated the resistance of an LDR and obtained the results shown in the table below.

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

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

I. 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]

current = ... A

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

current = ... mA

(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]

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

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.....

.....

(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]

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]

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.....

(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]

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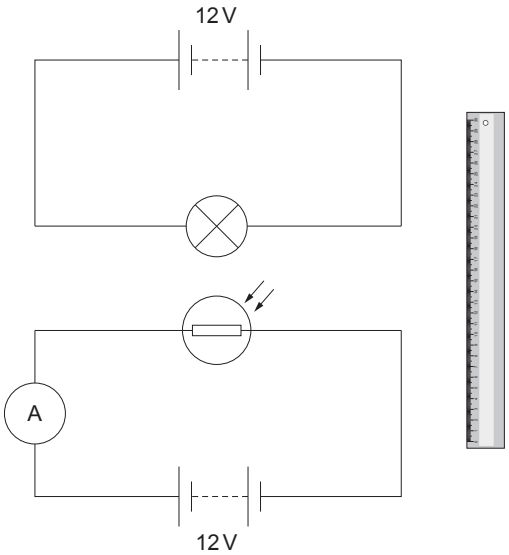
(iii) Another group of students want to investigate the relationship between light intensity and current, but they do not have a variable power supply to use. The following apparatus is available.

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]

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24

END OF PAPER

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Question number	Additional page, if required. Write the question number(s) in the left-hand margin.	Examiner only

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