CANBERRA SECONDARY SCHOOL

2020 Preliminary Examination

Secondary Four Express / Five Normal Academic

SCIENCE PHYSICS
5076/05

5 Aug 2020
45 minutes

Name: _____ ( ) **Class:** _____

READ THESE INSTRUCTIONS FIRST

Write your name, index number and class in the spaces provided.
Write in dark blue or black pen.
You may use a pencil for any diagrams or graphs.
Do not use staple, paper clips, highlighters, glue or correction fluid.

Do not open this booklet until you are told to do so.

Answer all the questions in the spaces provided on the question paper. The intended marks for the question are given in the brackets at the end of the question or part question [ ].

At the end of the examination, hand in your question paper. Do not staple or tie them together.

You are expected to use a scientific calculator to evaluate explicit numerical expressions. If the degree of accuracy is not specified in the question and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.

FOR MARKER'S USE		
	Marks Awarded	Max Marks
Total		15

<u>Setter</u>: Mr Chia Wai Han

Section A

A **resistor** is an electrical component that controls the amount of current in a circuit. Two different types of resistors are shown in figure 1.

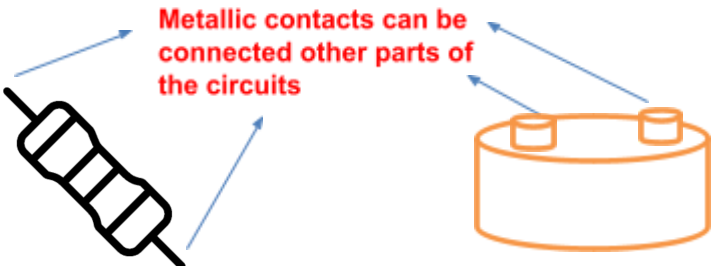


Figure 1

In this experiment you will investigate the resistance of a fixed resistor using the voltmeter-ammeter method.

You have been provided with

1. Two cells
2. One fixed resistor labelled **X**
3. Five colour banded resistors labelled **A** to **E**
4. Seven connecting leads with clips
5. a voltmeter
6. an ammeter
7. a switch

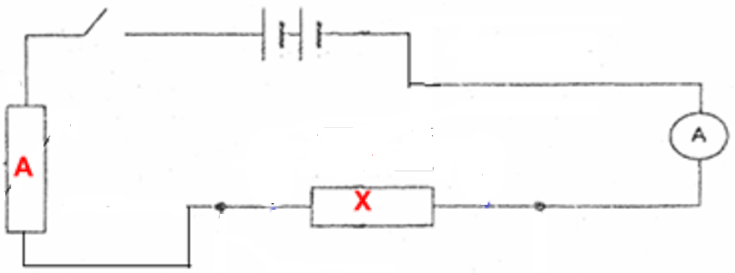


Figure 2

(a) Set up the apparatus as shown in figure 2 using resistors **X** and **A**.

(b) Close the switch. Record the ammeter reading.

ammeter reading = _____ [1]

(c) Connect the voltmeter to the circuit as shown in figure 3.

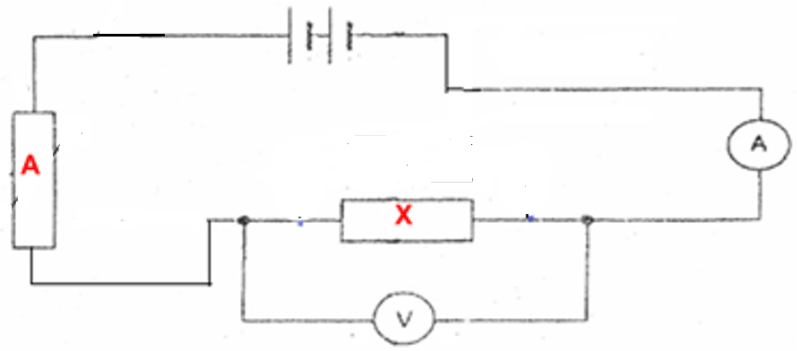


Figure 3

(d) Record the voltmeter reading.

voltmeter reading = _____ [1]

(e) Calculate the power of the resistor **X**.

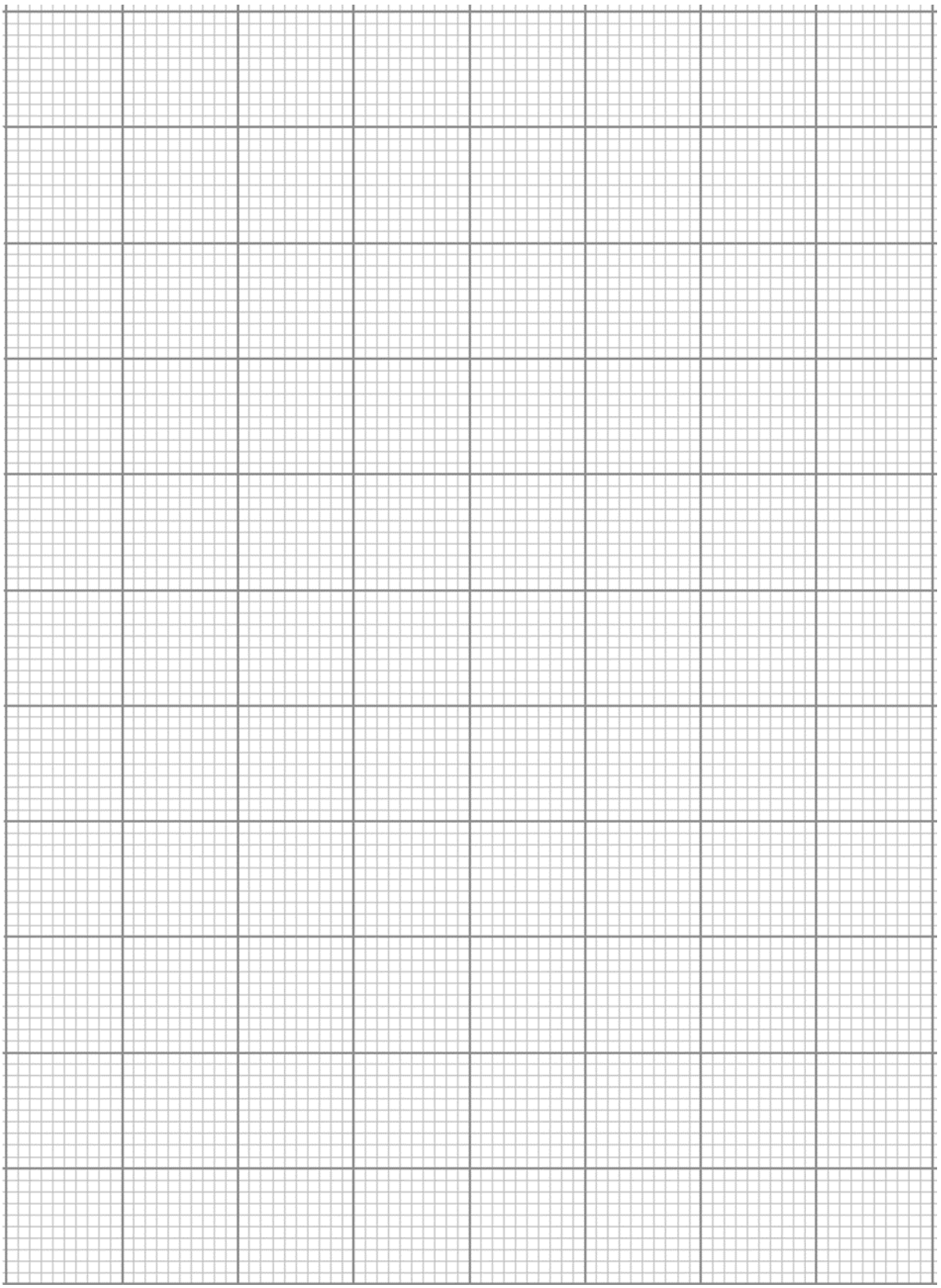
power = _____ [1]

(f) By replacing resistor **A** with other colour banded resistors (**B** to **E**), repeat step (**d**) for further sets of voltmeter readings, as well as the ammeter readings. Tabulate your readings below. [3]

Resistor	I /A	V/V
A		
B		
C		
D		

E		

(g) Plot a graph of V against I. [4]



(h) Determine the gradient of your line, showing clearly on your graph how you did it.

gradient = _____ [2]

(i) State the resistance of resistor **X**.

_____ [1]

(j) State one sources of error in the experiment.

_____

_____ [1]

(k) Suggest one improvement in the sources of error in **(j).**

_____

_____ [1]

End of Paper