

Electrical Quantities

Question Paper

Course	CIE IGCSE Physics
Section	4. Electricity & Magnetism
Topic	Electrical Quantities
Difficulty	Hard

Time Allowed 20

Score /9

Percentage /100

Question 1

Extended tier only

What is the definition of an electric field?

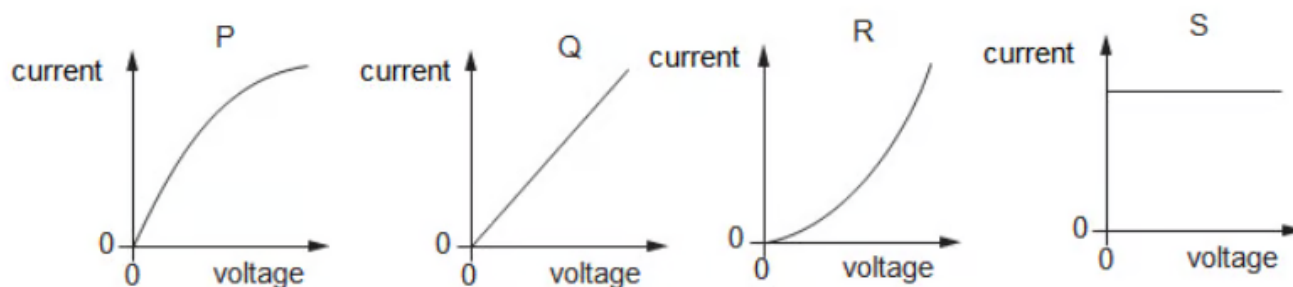
- A.** A region in space in which a mass experiences a force due to the Earth's mass.
- B.** A region in space through which electromagnetic radiation is passing.
- C.** A region in space in which a compass needle experiences a force.
- D.** A region in space in which an electric charge experiences a force.

[1 mark]

Question 2

Extended tier only

Four current-voltage graphs are given below.



Which graph shows an ohmic resistor and which shows a filament lamp?

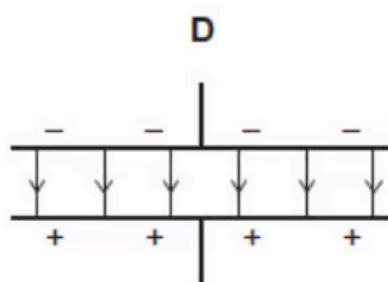
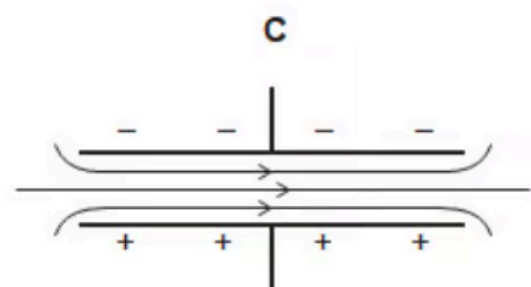
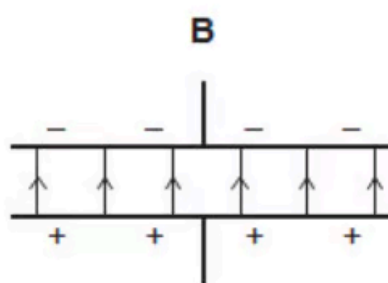
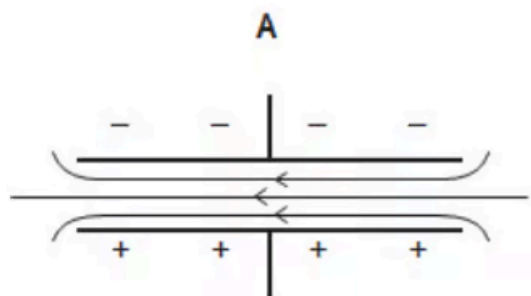
	Filament lamp	Ohmic resistor
A	Q	S
B	R	Q
C	P	Q
D	Q	R

[1 mark]

Question 3

Extended tier only

Which diagram shows the correct electric field pattern between two oppositely charged parallel plates?



[1 mark]

Question 4**Extended tier only**

Which row in the table gives the correct units for charge and e.m.f.?

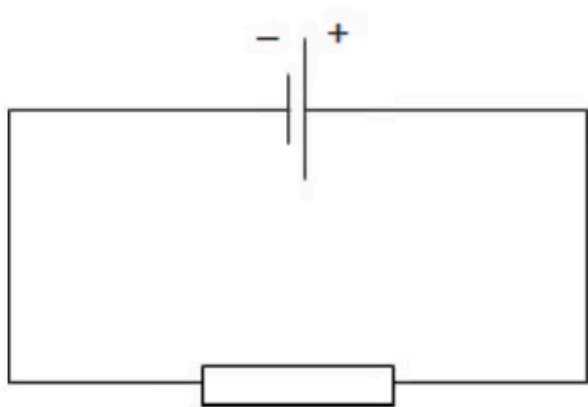
	Charge	EMF
A	Q	E
B	C	V
C	A	J
D	J	\equiv

[1 mark]

Question 5

Extended tier only

A student sets up a circuit as shown in the diagram.



A charge of 4.9 C flows through the resistor in 0.7 s.

Which row shows the correct current, direction of electron flow and direction of conventional current through the resistor?

	current / A	direction of electron flow	direction of conventional current
A	7.00	Left to right	Right to left
B	3.43	Left to right	Right to left
C	7.00	Right to left	Right to left
D	3.43	Right to left	Right to left

[1 mark]

Question 6

A student connects a 6 V power supply to a $3\ \Omega$ resistor. The resistor is left connected to the power supply for 1 minute.

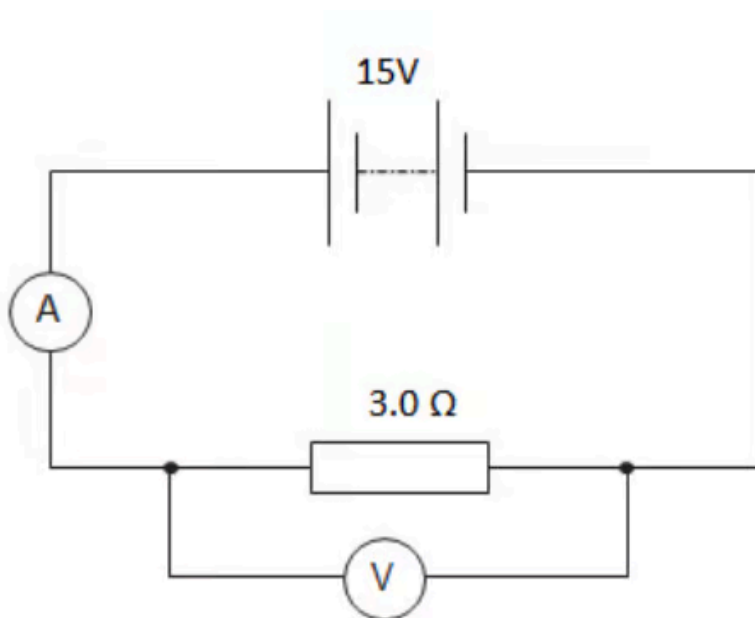
How much power is dissipated by the resistor?

- A. 2 W
- B. 12 W
- C. 720 J
- D. 18 W

[1 mark]

Question 7

A $3.0\ \Omega$ resistor is connected to a 15 V power supply as shown in the diagram. The ammeter reads 5 A throughout the experiment.



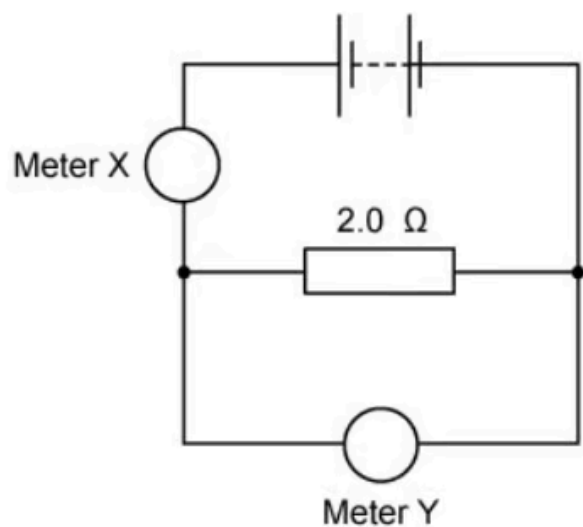
How much energy is dissipated as heat by the resistor in 2 minutes?

- A. 9.0 kJ
- B. 150 J
- C. 600 J
- D. 5.0 kJ

[1 mark]

Question 8

A $2.0\ \Omega$ resistor is connected to meter X and meter Y as shown in the diagram.



Which row in the table shows possible values for the two meters?

	X	Y
A	4.0	8.0
B	2.0	2.0
C	4.0	2.0
D	1.0	1.0

[1 mark]

Question 9

A student wants to measure the power dissipated by a $10\text{ k}\Omega$ resistor.

What equipment should the student use to determine the power dissipated?

- A.** A voltmeter and an ammeter
- B.** A voltmeter, an ammeter and a stopwatch
- C.** A voltmeter only
- D.** An ammeter and a stopwatch

[1 mark]