4.2 Electrical Quantities

Question Paper

Course	CIE IGCSE Physics
Section	4. Electricity & Magnetism
Topic	4.2 Electrical Quantities
Difficulty	Hard

Time allowed: 20

Score: /9

Percentage: /100

Question 1

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.

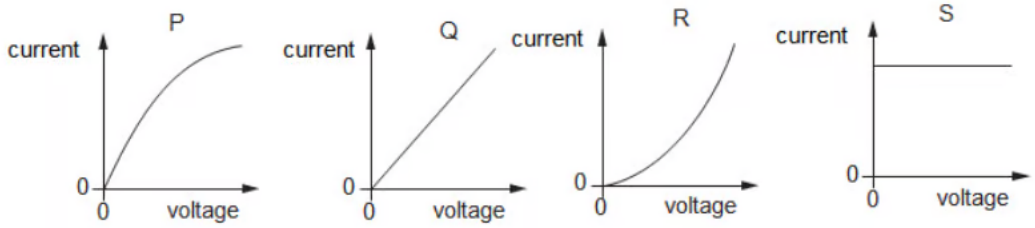
C. A region in space in which a compass needle experiences a force.

D. A region in space in which an electric charge experiences a force.

[1 mark]

Question 2

Four current-voltage graphs are given below.



One of them is for an ohmic resistor, and another is for a filament lamp.

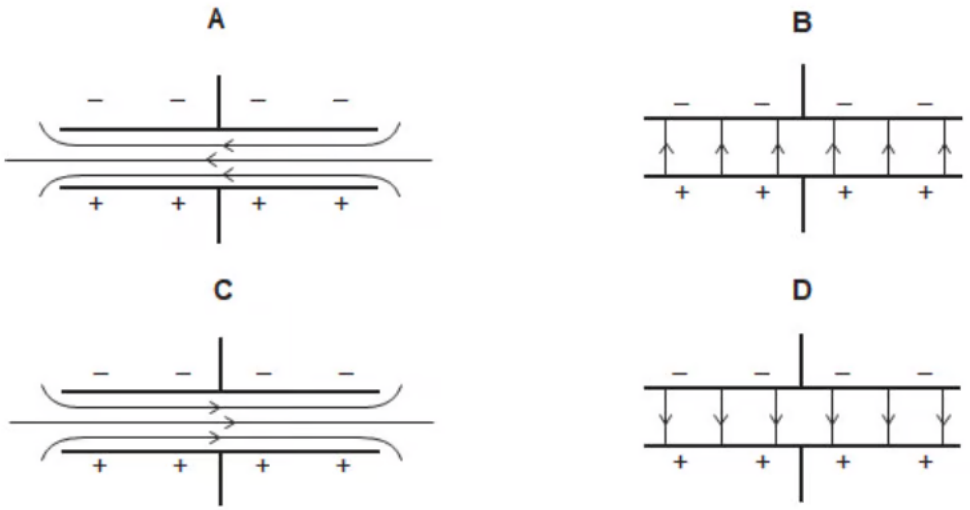
Which is which?

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

[1 mark]

Question 3

Which of the diagrams below shows the correct electric field pattern for oppositely charged parallel plates?



[1 mark]

Question 4

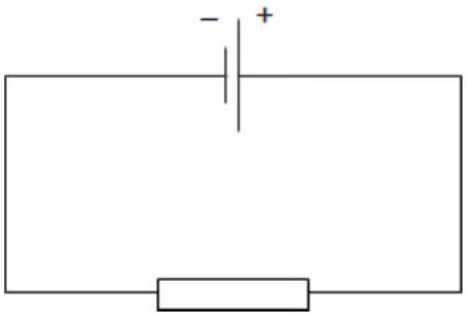
Which row in the table gives the correct units for charge and for EMF?

	Charge	EMF
A	Q	E
B	C	V
C	A	J
D	J	≣

[1 mark]

Question 5

A student sets up a circuit as shown in the diagram



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

What is the current through the resistor, which direction do electrons flow through the resistor, and what is the direction of the 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 Ξ 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

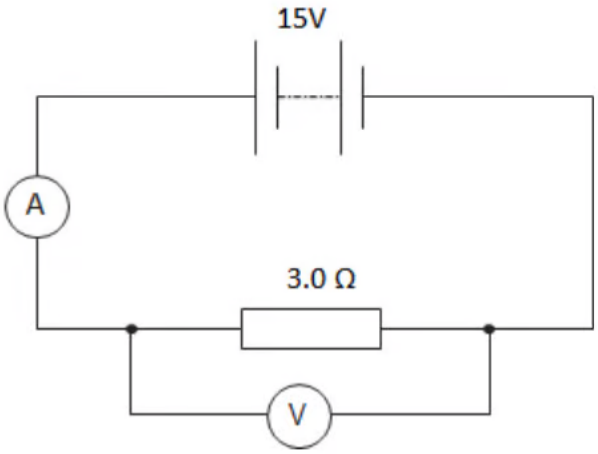
C. 720 J

D. 18 W

[1 mark]

Question 7

A 3.0 Ξ 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

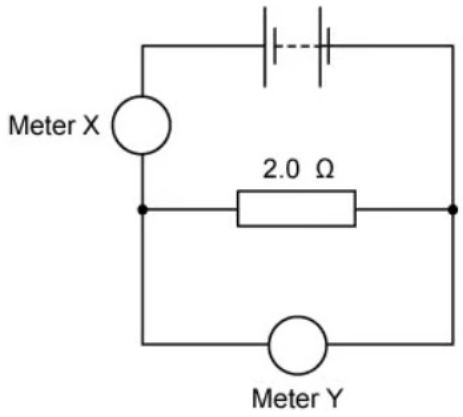
B. 150 J

C. 600 J

D. 5 J

[1 mark]

Question 8



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

	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 k≡ resistor.

She (obviously) knows the resistance of the resistor. What other equipment is **the minimum** required 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]