Electrical Quantities

Question Paper 3

Level	IGCSE
Subject	Physics (0625/0972)
Exam Board	Cambridge International Examinations (CIE)
Topic	General Physics
Sub-Topic	Electrical Quantities
Booklet	Question Paper 3

Time allowed: **19 minutes**

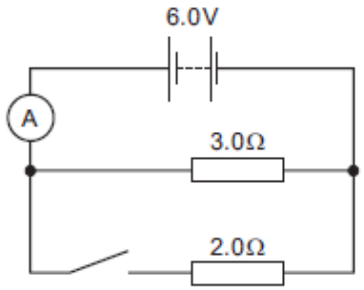
Score: **/15**

Percentage: **/100**

Grade Boundaries:

9	8	7	6	5	4	3	2	1
>85%	75%	68%	60%	55%	50%	43%	35%	<30%

The diagram shows a circuit with a 3.0 Ω resistor and a 2.0 Ω resistor connected in parallel.



The switch is open, and the ammeter reads 2.0 A.

The switch is now closed and the ammeter reads the total current in both resistors.

What is the ammeter reading with the switch closed?

A 1.2 A B 3.0 A C 4.0 A D 5.0 A

Question 2

Which row gives the unit for energy and the unit for electromotive force (e.m.f.)?

	energy	e.m.f.
A	J	N
B	J	V
C	W	N
D	W	V

Four wires are made from the same material.

Which wire has the least resistance?

	diameter of wire / mm	length of wire / cm
A	0.2	100
B	0.2	200
C	0.4	100
D	0.4	200

Which equation can be used to calculate the resistance R of a resistor?

A $V = I \div R$ B $I = V \times R$ C $R = V \times I$ D $V = I \times R$

A student wishes to measure first the electromotive force (e.m.f.) of a battery, and then the potential difference (p.d.) across a resistor.

She has the resistor, the battery and some connecting wires.

What else does she need?

A. a force meter (newton meter) and a voltmeter

B. an ammeter and a voltmeter

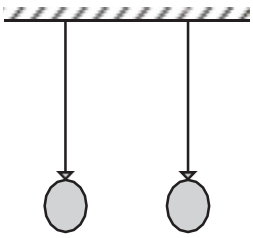
C. an ammeter only

D. a voltmeter only

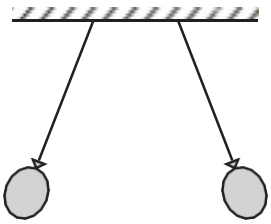
Two similar balloons hang side by side, on insulating threads, a short distance apart. They are both rubbed with the same dry cloth and become charged.

Which diagram shows how the balloons hang after charging?

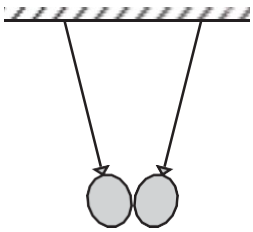
A



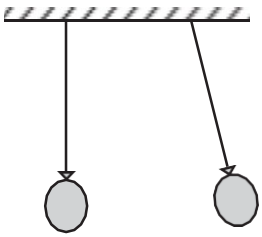
B



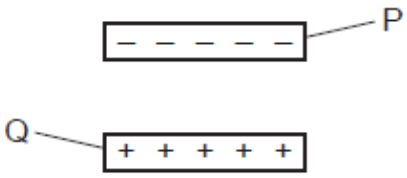
C



D



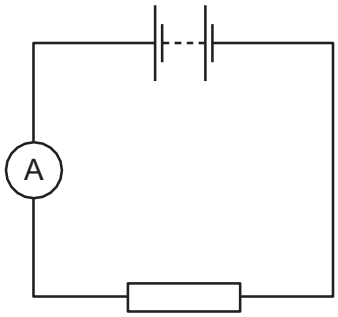
A negatively charged plastic rod P is placed above a positively charged plastic rod Q.



What are the directions of the electrostatic forces on rod P and on rod Q?

	electrostatic force on rod P	electrostatic force on rod Q
A	downwards	downwards
B	downwards	upwards
C	upwards	downwards
D	upwards	upwards

The diagram shows a circuit.



What should be increased to increase the current in the circuit?

A. the e.m.f. of the battery

B. the length of the connecting wires

C. the resistance of the resistor

D. the temperature of the resistor

In which unit is potential difference measured?

A. ampere

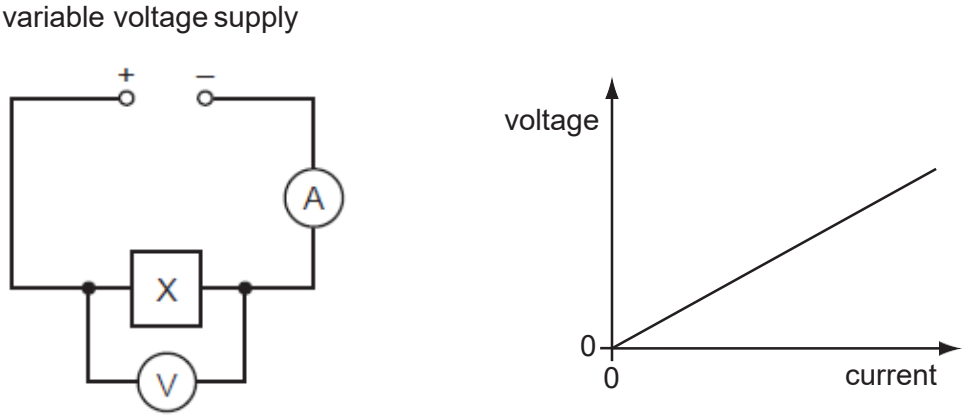
B. ohm

C. volt

D. watt

The circuit shown in the diagram contains an unknown component X, hidden in a box.

The voltage-current graph for X is as shown.



What is the component X?

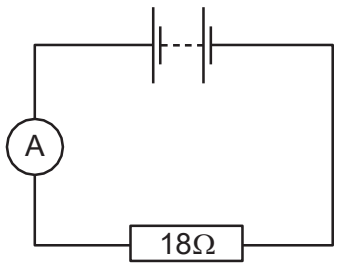
A. a capacitor

B. a closed switch

C. an open switch

D. a resistor of constant resistance

An ammeter and an 18 Ω resistor are connected in series with a battery. The reading on the ammeter is 0.50 A. The resistance of the battery and the ammeter can be ignored.



What is the electromotive force (e.m.f.) of the battery?

A 9.0 N B 9.0 V C 36 N D 36 V

Which test could be used to find which end of a magnet is the north pole?

A. putting it near a compass needle

B. putting it near a ferrous metal

C. putting it near a non-ferrous metal

D. putting it near a steel spoon

A polythene rod repels an inflated balloon hanging from a nylon thread.

What charges must the rod and the balloon carry?

A The rod and the balloon carry opposite charges.

B The rod and the balloon carry like charges.

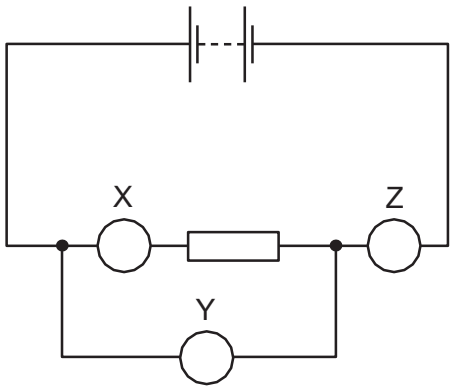
C. The rod is charged but the balloon is not.

D. The balloon is charged but the rod is not.

Which symbols are used for the units of current and of resistance?

	unit of current	unit of resistance
A	A	W
B	A	Ω
C	C	W
D	C	Ω

The diagram shows an electric circuit containing three meters, X, Y and Z, all connected correctly.



What are meters X, Y and Z?

	X	Y	Z
A	ammeter	ammeter	ammeter
B	ammeter	voltmeter	ammeter
C	voltmeter	ammeter	voltmeter
D	voltmeter	voltmeter	voltmeter