



Electricity

2009

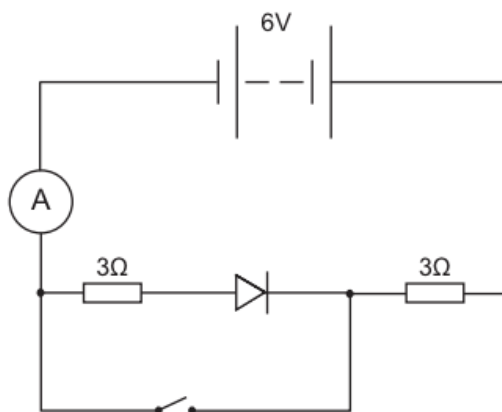
- 7 Which of the following is a correct unit of potential difference (voltage)?
- A amp per ohm
 - B coulomb per joule
 - C joule per second
 - D newton per coulomb
 - E watt per amp



Electricity

2011

11 Consider this circuit.



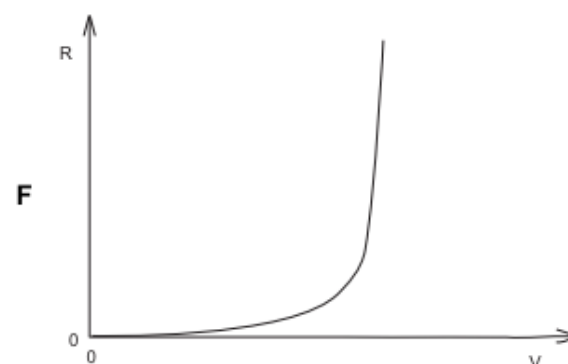
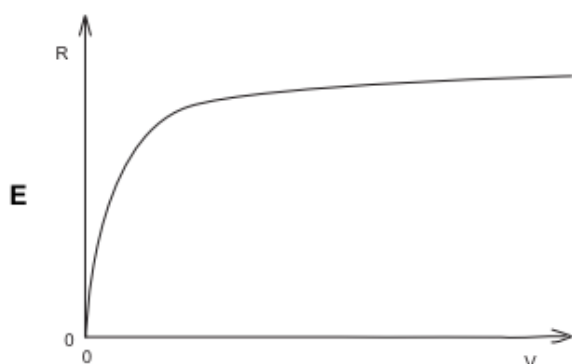
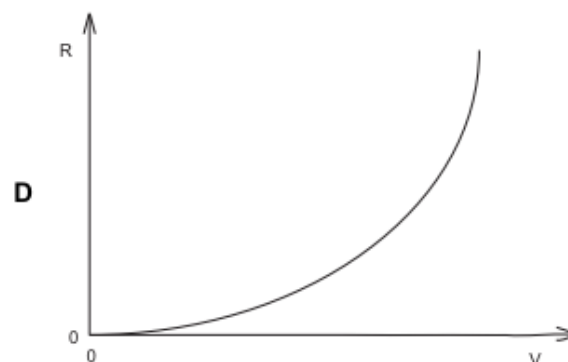
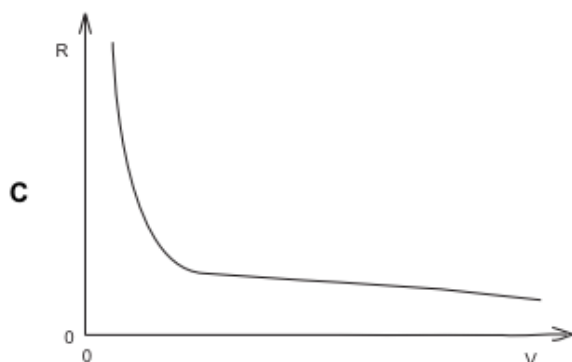
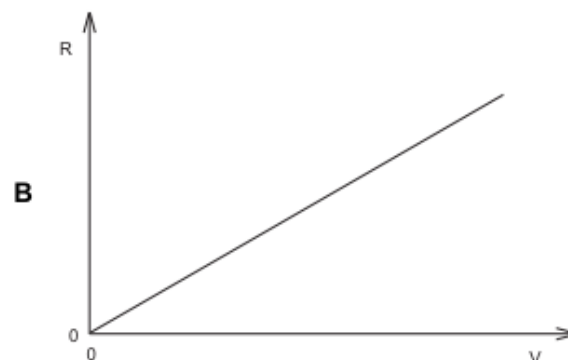
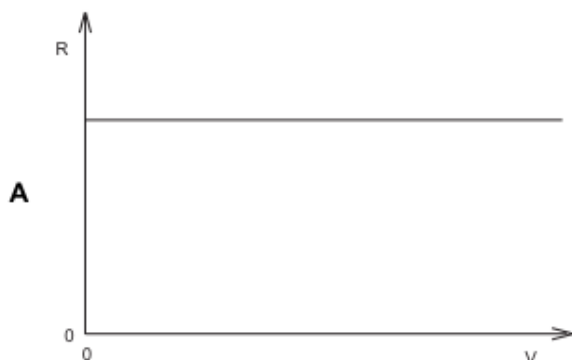
Which line in the table gives the current flowing in the ammeter, in amps, when the switch is open, and when it is closed?

	ammeter reading/A	
	switch open	switch closed
A	0.0	1.0
B	0.0	2.0
C	1.0	0.0
D	1.0	1.0
E	1.0	2.0
F	2.0	0.0
G	2.0	1.0
H	2.0	2.0



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- 19 Which graph correctly shows how the resistance (R) varies with applied voltage (V) for a resistor at constant temperature?

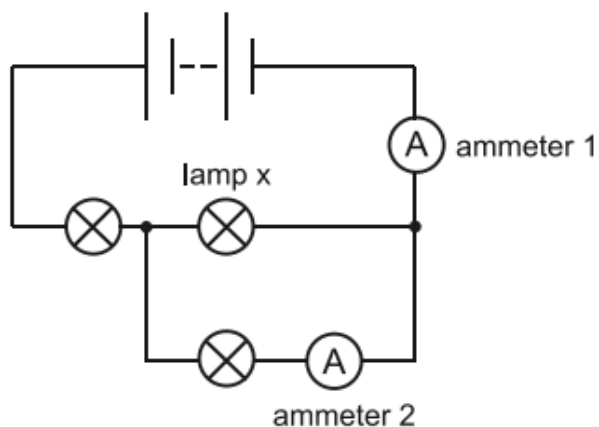




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2012

19 The circuit shows three lamps and two ammeters in a circuit.



Lamp X 'blows' (the filament breaks).

What happens to the reading on each ammeter, and to the total resistance of the circuit?

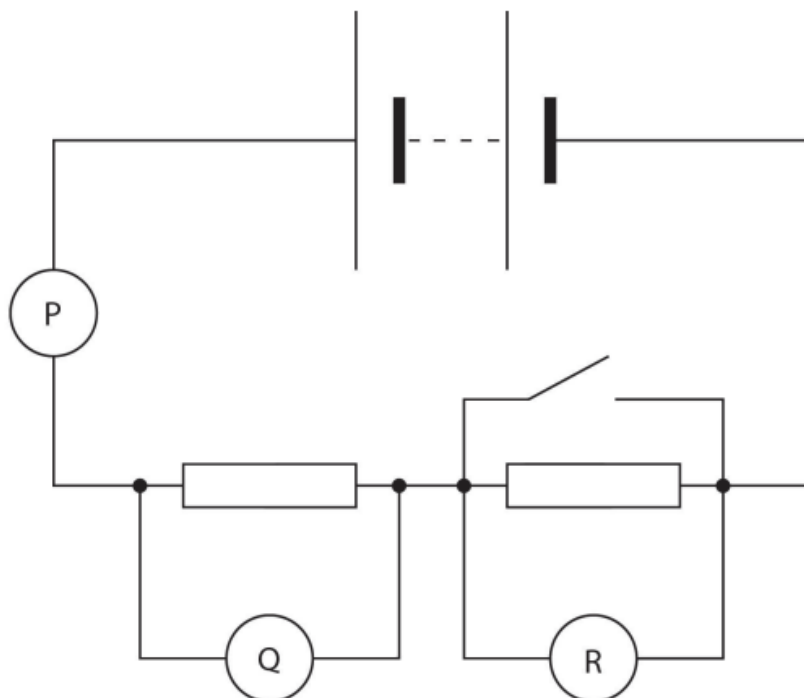
	Reading on ammeter 1	Reading on ammeter 2	Total resistance of circuit
A	decreases	decreases	decreases
B	decreases	decreases	increases
C	decreases	increases	decreases
D	decreases	increases	increases
E	increases	decreases	decreases
F	increases	decreases	increases
G	increases	increases	decreases
H	increases	increases	increases



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2013

- 7 The diagram shows three appropriate meters, P, Q and R, connected in the conventional way in a circuit. The switch is initially open.



The switch is now closed. What happens to the readings on each meter?

- A P decreases, Q decreases, R decreases
- B P decreases, Q decreases, R increases
- C P decreases, Q increases, R decreases
- D P decreases, Q increases, R increases
- E P increases, Q decreases, R decreases
- F P increases, Q increases, R increases
- G P increases, Q decreases, R increases
- H P increases, Q increases, R decreases



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- 19 Two resistors of R_1 ohms and R_2 ohms are connected in series to a battery which has an e.m.f. of V .

Which formula gives the power dissipated by resistor R_1 ?

A $\frac{VR_1}{(R_1 + R_2)}$

B $\frac{V^2R_1}{(R_1 + R_2)}$

C $\frac{VR_1}{(R_1 + R_2)^2}$

D $\frac{V^2R_1}{(R_1 + R_2)^2}$

E $\frac{VR_1^2}{(R_1 + R_2)}$

F $\frac{V^2R_1^2}{(R_1 + R_2)^2}$



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2014

7 Which one of the following is a unit of current?

- A ampere / second
- B coulomb \times second
- C joule / coulomb
- D ohm / volt
- E volt \times ohm
- F watt / volt



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- 11 Two rods, X and Y, are made from different electrically insulating materials. A student rubs rod X, which is initially uncharged, with a cloth, then holds it near to rod Y. The two rods repel each other.

Which statement explains why repulsion occurs in this experiment?

- A Rod X gains electrons from the cloth and rod Y is positively charged.
- B Rod X gains electrons from the cloth and rod Y is uncharged.
- C Rod X gains protons from the cloth and rod Y is negatively charged.
- D Rod X gains protons from the cloth and rod Y is positively charged.
- E Rod X loses electrons to the cloth and rod Y is negatively charged.
- F Rod X loses electrons to the cloth and rod Y is positively charged.
- G Rod X loses protons to the cloth and rod Y is negatively charged.
- H Rod X loses protons to the cloth and rod Y is uncharged.



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2015

- 7 A 100% efficient step-down transformer decreases the voltage of an alternating current (a.c.) electricity supply.

What effect does this step-down transformer have on the mean power transferred and the alternating current delivered?

	<i>Power</i>	<i>Current</i>
A	decreases	decreases
B	decreases	does not change
C	does not change	decreases
D	does not change	increases
E	increases	does not change
F	increases	increases



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27 Consider the following three statements:

- 1 A mass of 4.0 kg requires a resultant force of 5.0 N to act on it in order to accelerate it at 1.25 m/s^2 .
- 2 A wave of frequency 4.0 Hz travelling at a speed of 5.0 m/s has a wavelength of 1.25 m.
- 3 A voltage of 4.0 V applied across a 5.0Ω resistor causes a current of 1.25 A to flow.

Which statement(s) is/are true?

- A 1 only
- B 2 only
- C 3 only
- D 1 and 2 only
- E 1 and 3 only
- F 2 and 3 only
- G 1, 2 and 3
- H None of them



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2016

- 19 A defibrillator provides an electric shock to a heart to restore its normal rhythm. The energy to do this is 125 J, at a steady voltage of 500 V, for a time of 10 milliseconds.

What is the current during this process?

- A 2.5 mA
- B 25 mA
- C 2.5 A
- D 25 A
- E 6250 A
- F 6250 kA