

1 - (0625-S 2012-Paper 1 (Core)/3-Q27) - *ELECTRICITY*

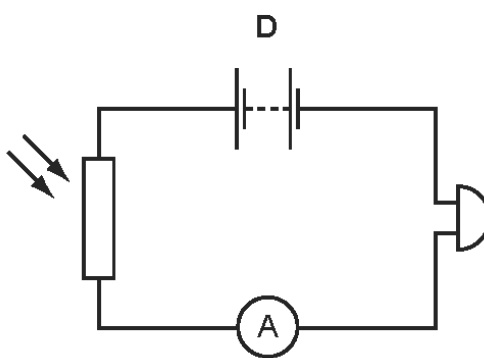
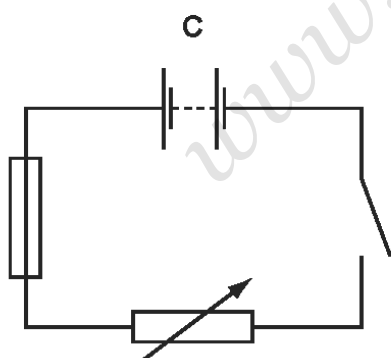
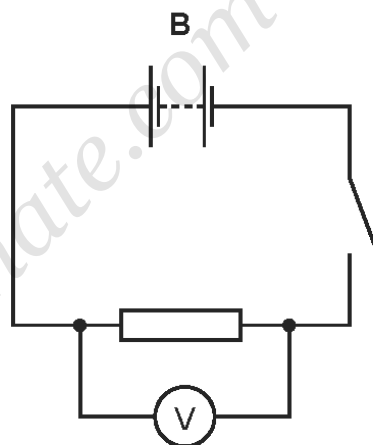
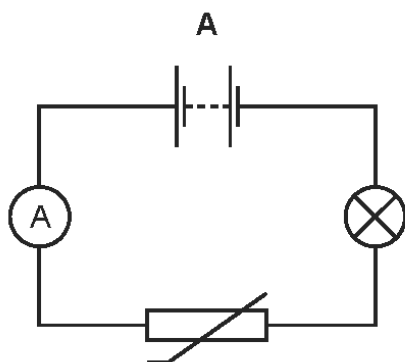
A thermistor is used in a circuit to control a piece of equipment automatically.

What might this circuit be used for?

- A** lighting an electric lamp as it becomes darker
- B** ringing an alarm bell if a locked door is opened
- C** switching on a water heater at a pre-determined time
- D** turning on an air conditioner when the temperature rises

2 - (0625-S 2012-Paper 1 (Core)/3-Q28) - *ELECTRICITY*

Which circuit contains a fuse?



3 - (0625-S 2012-Paper 1 (Core)/1-Q29) - *ELECTRICITY*

In which unit is potential difference measured?

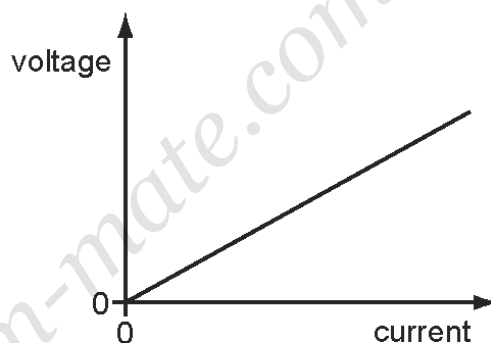
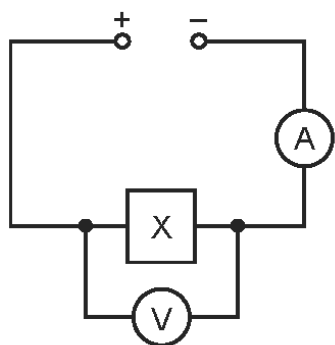
- A ampere
- B ohm
- C volt
- D watt

4 - (0625-S 2012-Paper 1 (Core)/1-Q30) - *ELECTRICITY*

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

The voltage-current graph for X is as shown.

variable voltage supply

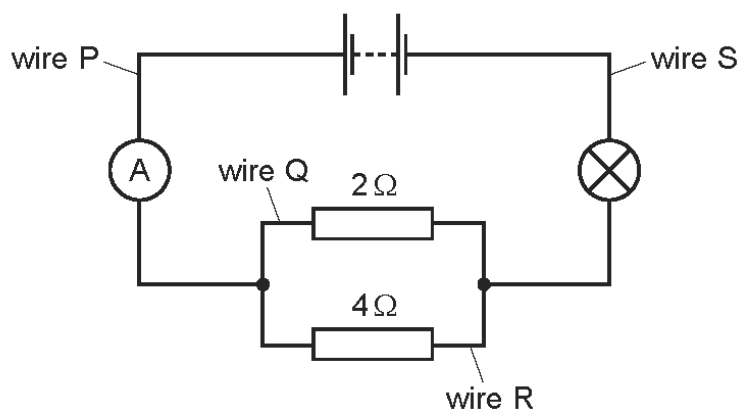


What is the component X?

- A a capacitor
- B a closed switch
- C an open switch
- D a resistor of constant resistance

5 - (0625-S 2012-Paper 1 (Core)/2-Q32) - *ELECTRICITY*

The circuit diagram includes two resistors connected in parallel.

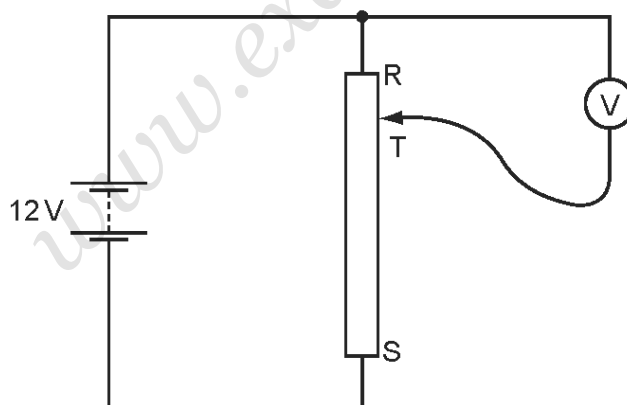


Which statement is correct?

- A** The current in wire P is equal to the current in wire Q.
- B** The current in wire Q is equal to the current in wire R.
- C** The current in wire R is equal to the current in wire S.
- D** The current in wire S is equal to the current in wire P.

6 - (0625-S 2012-Paper 1 (Core)/3-Q32) - *ELECTRICITY*

A student connects a variable potential divider (potentiometer) circuit.

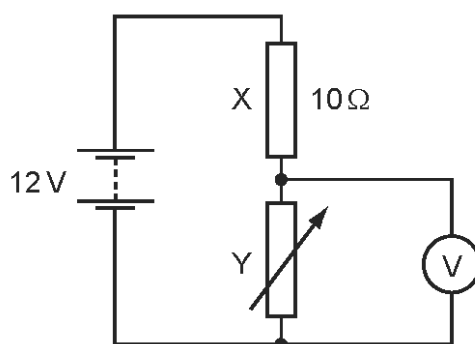


What happens to the reading on the voltmeter as the sliding terminal T is moved from R to S?

- A** It decreases from 12V to 0V.
- B** It increases from 0V to 12V.
- C** It remains at 0V.
- D** It remains at 12V.

7 - (0625-S 2012-Paper 1 (Core)/2-Q33) - *ELECTRICITY*

A circuit is connected for use as a potential divider.



The resistance of resistor X is  $10\Omega$ .

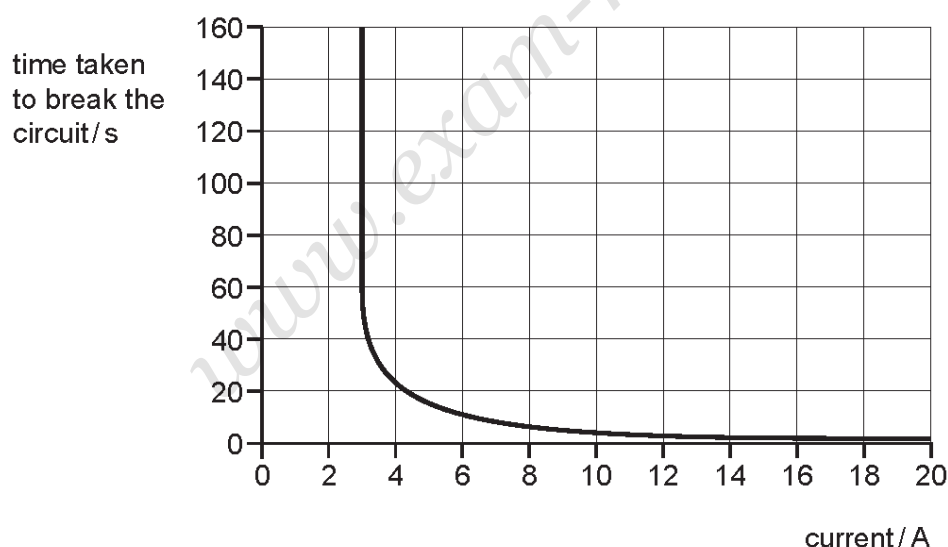
When the resistance of the variable resistor Y is  $20\Omega$ , what is the reading on the voltmeter?

- A** 4.0V      **B** 6.0V      **C** 8.0V      **D** 12V

8 - (0625-S 2012-Paper 1 (Core)/1-Q34) - *ELECTRICITY*

A circuit-breaker is designed to protect a circuit which usually carries a current of 2 A.

The time taken to break the circuit depends on the current, as shown in the graph.

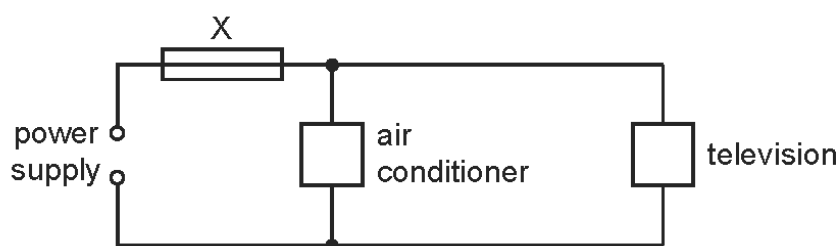


What happens when the current in the circuit is 2 A and what happens when the current 18 A?

	when the current is 2 A	when the current is 18 A
<b>A</b>	the circuit breaks in less than 5 seconds	the circuit breaks in less than 5 seconds
<b>B</b>	the circuit breaks in less than 5 seconds	the circuit does not break
<b>C</b>	the circuit does not break	the circuit breaks in less than 5 seconds
<b>D</b>	the circuit does not break	the circuit does not break

9 - (0625-S 2012-Paper 1 (Core)/2-Q34) - *ELECTRICITY*

An air conditioner and a television are both connected to the same electrical circuit.



The current in the air conditioner is  $4.0\text{ A}$  and the current in the television is  $6.0\text{ A}$ .

Several different fuses are available.

Which fuse should be connected at X?

- A** 3 A                      **B** 5 A                      **C** 10 A                      **D** 13 A

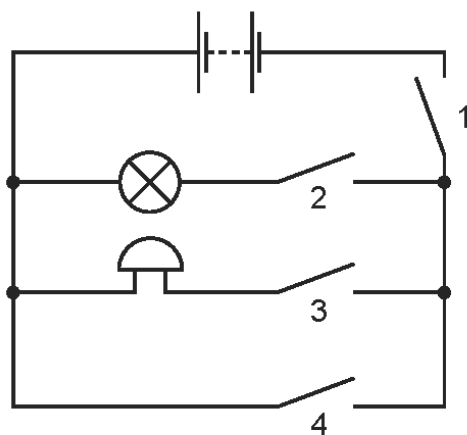
10 - (0625-W 2012-Paper 1 (Core)/2-Q27) - *ELECTRICITY*

Which of these is an electric current?

- A** a beam of atoms  
**B** a beam of electrons  
**C** a beam of molecules  
**D** a beam of neutrons

11 - (0625-W 2012-Paper 1 (Core)/2-Q28) - *ELECTRICITY*

A student connects the circuit shown.



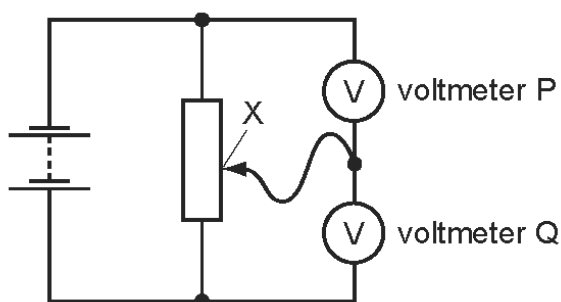
Which switches must be closed for the bell to ring without lighting the lamp?

- A** 1 and 2 only
- B** 1 and 3 only
- C** 1, 3 and 4 only
- D** 2, 3 and 4 only

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12 - (0625-W 2012-Paper 1 (Core)/2-Q29) - *ELECTRICITY*

The diagram shows two voltmeters, P and Q, connected to a potential divider.



The sliding connection at point X is moved towards the top of the diagram.

What happens to the reading on P and to the reading on Q?

	reading on P	reading on Q
<b>A</b>	decreases	decreases
<b>B</b>	decreases	increases
<b>C</b>	increases	decreases
<b>D</b>	increases	increases

13 - (0625-W 2012-Paper 1 (Core)/3-Q29) - *ELECTRICITY*

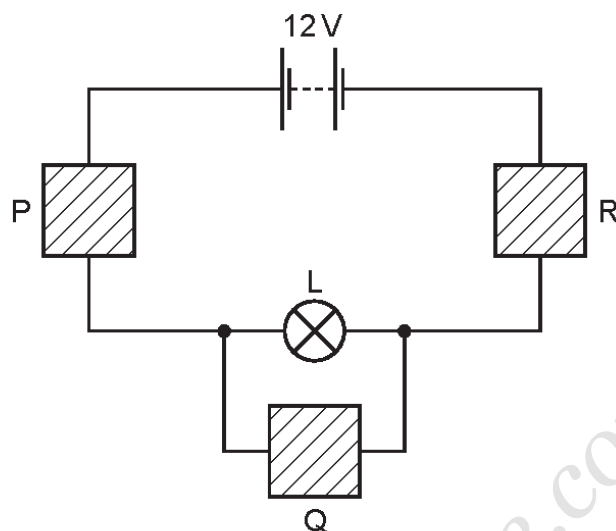
Which is the worst electrical conductor?

- A** aluminium
- B** carbon (graphite)
- C** iron
- D** sulfur

14 - (0625-W 2012-Paper 1 (Core)/1-Q30) - *ELECTRICITY*

The diagram shows a circuit used to find the resistance of lamp L.

Blocks P, Q and R represent the different components used.



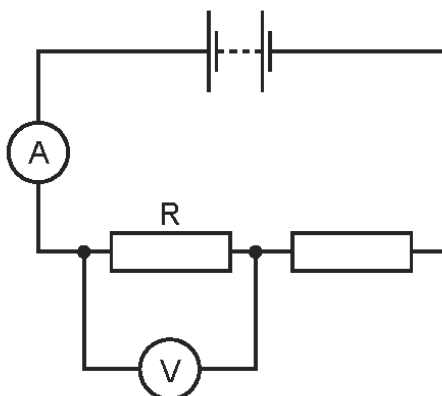
Which is a correct possible choice of components to use for P, Q and R?

	P	Q	R
A	ammeter	variable resistor	voltmeter
B	variable resistor	voltmeter	ammeter
C	voltmeter	ammeter	variable resistor
D	voltmeter	variable resistor	ammeter



15 - (0625-W 2012-Paper 1 (Core)/3-Q30) - *ELECTRICITY*

The circuit shows a 24 V battery connected to two resistors in series.



The reading on the ammeter is 2.0 A and the reading on the voltmeter is 8.0 V.

What is the resistance of resistor R?

- A**  $0.25\ \Omega$       **B**  $4.0\ \Omega$       **C**  $10\ \Omega$       **D**  $16\ \Omega$

16 - (0625-W 2012-Paper 1 (Core)/2-Q31) - *ELECTRICITY*

Which row shows a use of a capacitor and a use of a relay?

	use of a capacitor	use of a relay
<b>A</b>	switching circuit	voltage transformation
<b>B</b>	time-delay circuit	switching circuit
<b>C</b>	voltage transformation	switching circuit
<b>D</b>	voltage transformation	time-delay circuit

17 - (0625-W 2012-Paper 1 (Core)/3-Q31) - *ELECTRICITY*

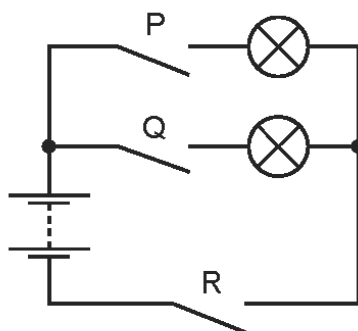
A relay allows a small current in one circuit to control a different circuit.

Which type of force is produced by the small current to activate the relay?

- A** electrical  
**B** frictional  
**C** gravitational  
**D** magnetic

18 - (0625-W 2012-Paper 1 (Core)/3-Q32) - ELECTRICITY

The diagram shows a circuit containing two identical lamps.

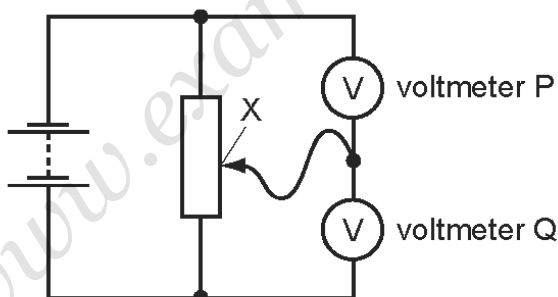


Which switches must be closed to light both of the lamps?

- A** P and Q only
- B** P and R only
- C** Q and R only
- D** P, Q and R

19 - (0625-W 2012-Paper 1 (Core)/1-Q33) - ELECTRICITY

The diagram shows two voltmeters, P and Q, connected to a potential divider.



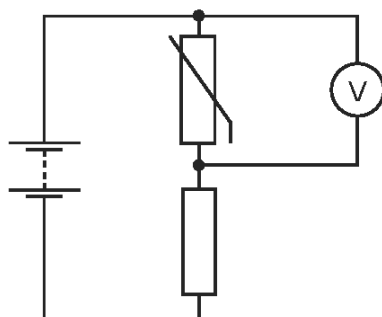
The sliding connection at point X is moved towards the top of the diagram.

What happens to the reading on P and to the reading on Q?

	reading on P	reading on Q
<b>A</b>	decreases	decreases
<b>B</b>	decreases	increases
<b>C</b>	increases	decreases
<b>D</b>	increases	increases

20 - (0625-W 2012-Paper 1 (Core)/3-Q33) - *ELECTRICITY*

The diagram shows a potential divider circuit.



The temperature of the thermistor increases.

What happens to the resistance of the thermistor, and what happens to the reading on the voltmeter?

	resistance of thermistor	voltmeter reading
<b>A</b>	decreases	decreases
<b>B</b>	decreases	increases
<b>C</b>	increases	decreases
<b>D</b>	increases	increases

21 - (0625-W 2012-Paper 1 (Core)/1-Q34) - *ELECTRICITY*

An electric oven is connected to the mains supply using insulated copper wires. The wires become very warm.

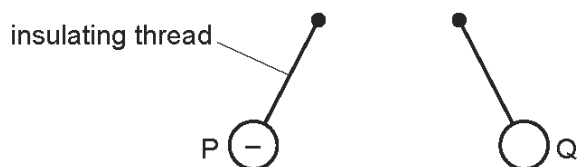
What can be done to prevent so much heat being produced in the connecting wires?

- A** Use thicker copper wires.
- B** Use thinner copper wires.
- C** Use thicker insulation.
- D** Use thinner insulation.

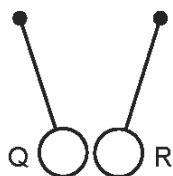
**22** - (0625-S 2013-Paper 1 (Core)/1-Q28) - *ELECTRICITY*

Three charged balls, P, Q and R are suspended by insulating threads. Ball P is negatively charged.

Ball Q is brought close to ball P.



Ball Q is now brought close to ball R.

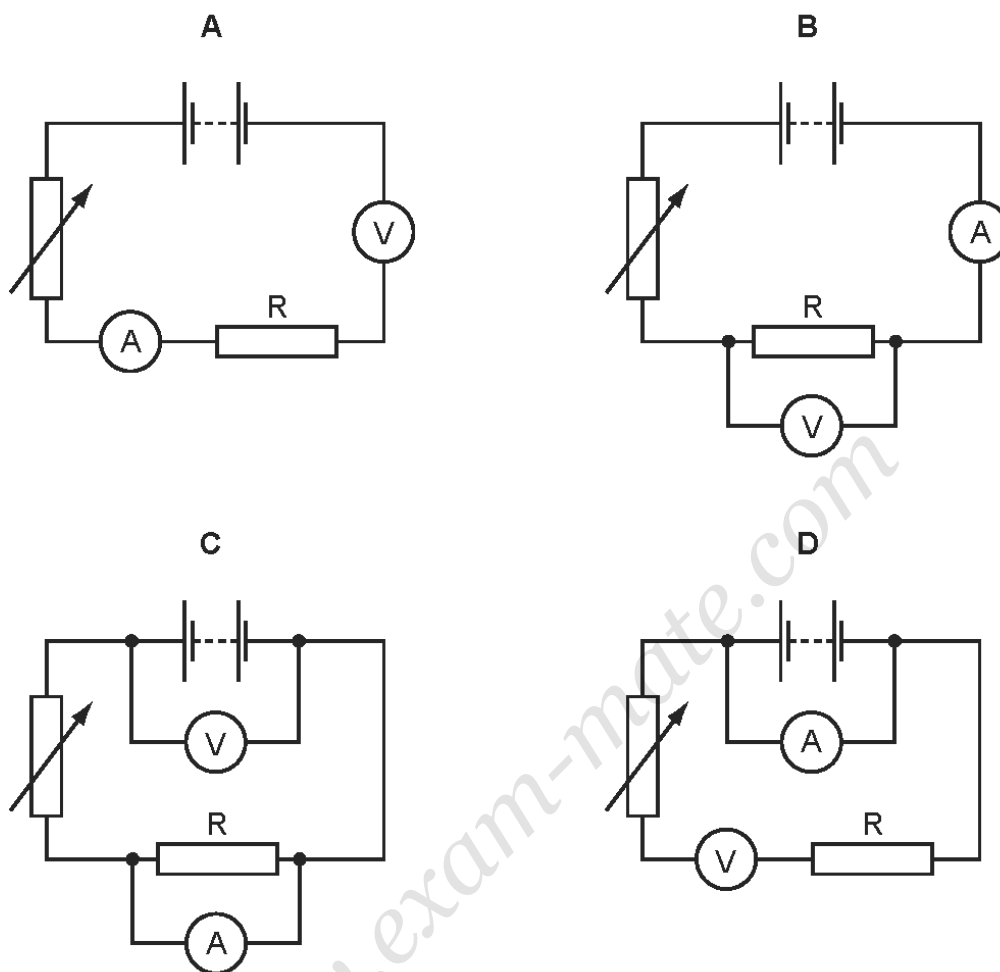


What are the charges on ball Q and on ball R?

	ball Q	ball R
<b>A</b>	positive	positive
<b>B</b>	positive	negative
<b>C</b>	negative	positive
<b>D</b>	negative	negative

23 - (0625-S 2013-Paper 1 (Core)/1-Q29) - *ELECTRICITY*

Which circuit could be used to determine the resistance of the resistor R?



24 - (0625-S 2013-Paper 1 (Core)/2-Q29) - *ELECTRICITY*

Which group contains only good electrical conductors?

- A** air, carbon (graphite), plastic
- B** air, gold, mercury
- C** carbon (graphite), copper, mercury
- D** copper, gold, plastic

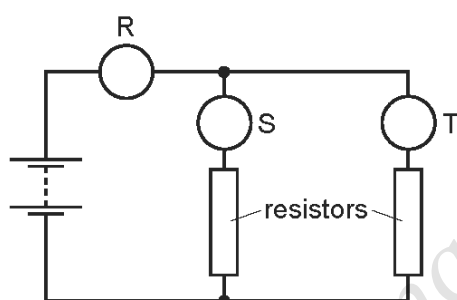
25 - (0625-S 2013-Paper 1 (Core)/3-Q29) - *ELECTRICITY*

Which copper wire would have the smallest resistance?

- A** a long, thick wire
- B** a long, thin wire
- C** a short, thick wire
- D** a short, thin wire

26 - (0625-S 2013-Paper 1 (Core)/2-Q30) - *ELECTRICITY*

A student investigates a circuit that contains two parallel resistors. The circuit includes meters R, S and T which are all connected correctly.

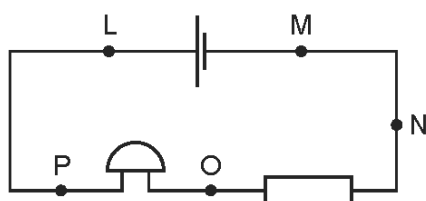


Which types of meter are R, S and T?

	meter R	meter S	meter T
<b>A</b>	ammeter	ammeter	ammeter
<b>B</b>	ammeter	voltmeter	voltmeter
<b>C</b>	voltmeter	ammeter	ammeter
<b>D</b>	voltmeter	voltmeter	voltmeter

27 - (0625-S 2013-Paper 1 (Core)/3-Q30) - *ELECTRICITY*

The diagram shows an electrical circuit.



Between which two points must a voltmeter be connected to find the potential difference across the bell?

- A** L and M
- B** M and N
- C** N and O
- D** O and P

28 - (0625-S 2013-Paper 1 (Core)/2-Q31) - *ELECTRICITY*

A circuit contains the component shown by the following symbol.



Which change would the component detect?

A change in

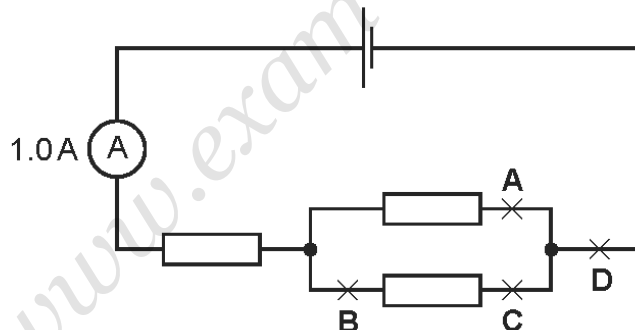
- A** light level.
- B** potential difference.
- C** radioactivity.
- D** temperature.

29 - (0625-S 2013-Paper 1 (Core)/1-Q32) - *ELECTRICITY*

The reading on the ammeter in the circuit is 1.0 A.

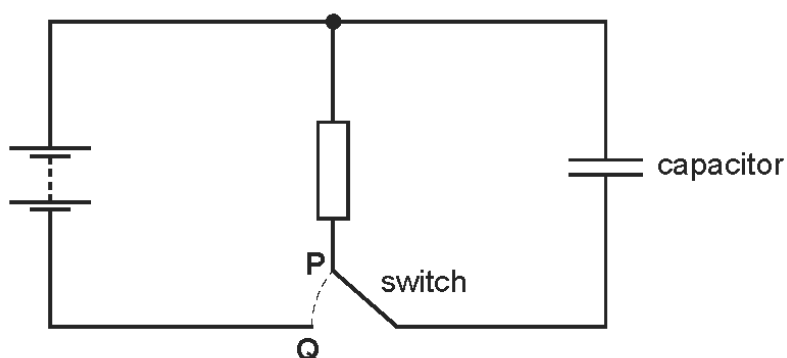
A second ammeter is connected in the circuit. It also reads 1.0 A.

At which labelled point is it connected?



30 - (0625-S 2013-Paper 1 (Core)/2-Q32) - *ELECTRICITY*

The diagram shows a circuit which includes a switch and a capacitor.



What happens to the capacitor when the switch is at **P** and when it is at **Q**?

	switch at <b>P</b>	switch at <b>Q</b>
<b>A</b>	charging	charging
<b>B</b>	charging	discharging
<b>C</b>	discharging	charging
<b>D</b>	discharging	discharging

31 - (0625-S 2013-Paper 1 (Core)/3-Q32) - *ELECTRICITY*

The circuit shows a battery and four lamps. All the lamps are lit.

One lamp fails and all the lamps go out.

Which lamp failed?

