

# Electrical Circuits

## Question Paper 3

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

**Time allowed:** 18 minutes

**Score:** /14

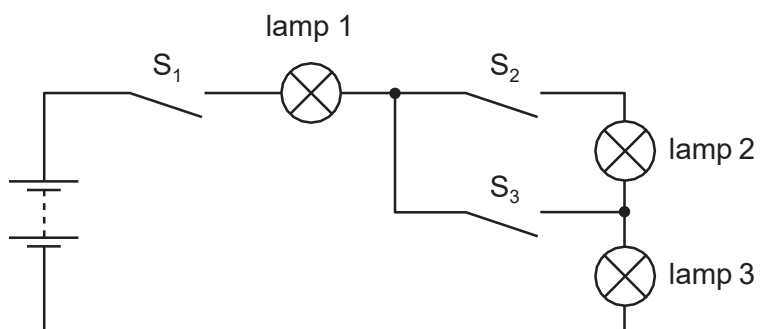
**Percentage:** /100

### Grade Boundaries:

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

## Question 1

The diagram shows a circuit containing three lamps and three switches  $S_1$ ,  $S_2$  and  $S_3$ .



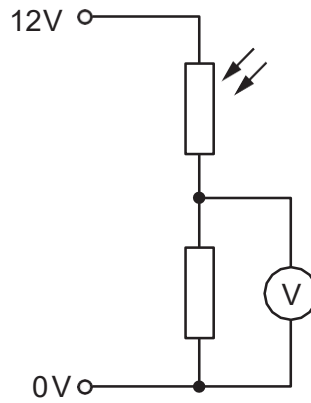
Lamp 1 and lamp 3 are lit, but lamp 2 is not lit.

Which switch or switches is/are closed?

- A.  $S_1$  only
- B.  $S_1$  and  $S_2$
- C.  $S_1$  and  $S_3$
- D.  $S_2$  and  $S_3$

## Question 2

The diagram shows part of an electric circuit.



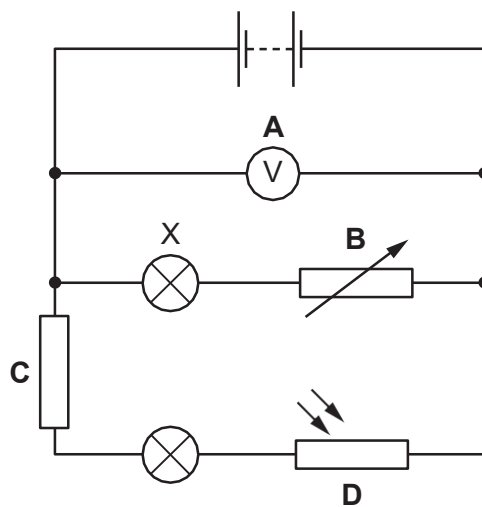
The light falling on the light-dependent resistor (LDR) increases in brightness.

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

	resistance of LDR	reading on voltmeter
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

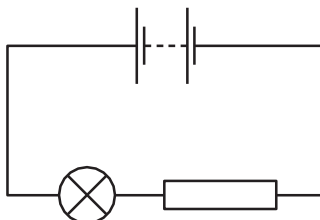
### Question 3

Which labelled component in the circuit shown controls the brightness of lamp X?



## Question 4

The diagram shows a lamp and a resistor connected in a circuit. The lamp is too bright.



Which change to the circuit will decrease the current in the lamp and make it less bright?

- A. connecting another resistor in parallel with the one in the circuit
- B. connecting another resistor in series with the one in the circuit
- C. exchanging the positions of the lamp and the resistor in the circuit
- D. increasing the e.m.f. of the battery in the circuit

## Question 5

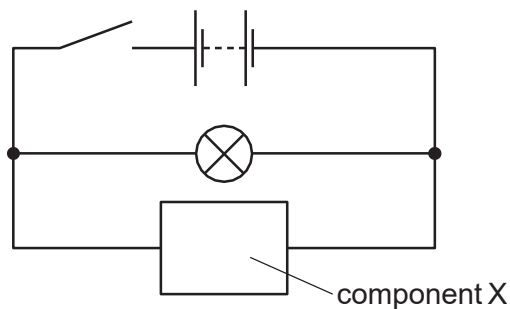
Which statement is **not** correct for lamps connected in parallel?

- A. They can be switched on and off separately.
- B. They will remain bright if another lamp is connected in parallel.
- C. They share the supply voltage equally between them.
- D. They still operate if one lamp is removed.

## Question 6

The diagram shows a circuit containing a battery, a lamp, a switch and another component X. The switch is initially closed and the lamp is lit.

The switch is now opened and the lamp remains lit for several seconds before slowly going out.



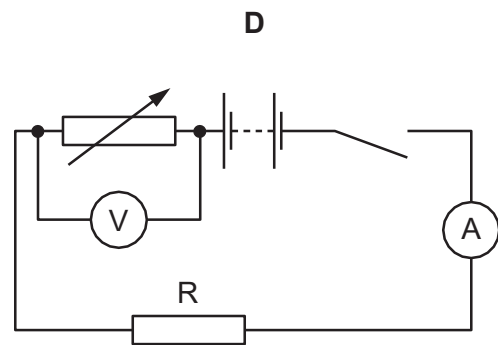
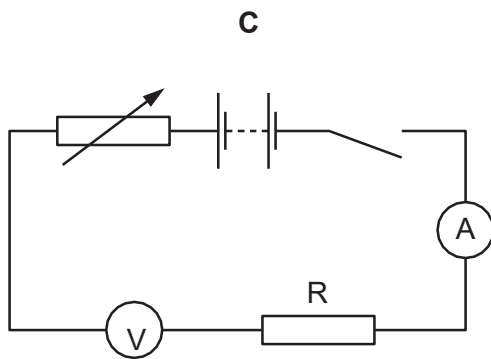
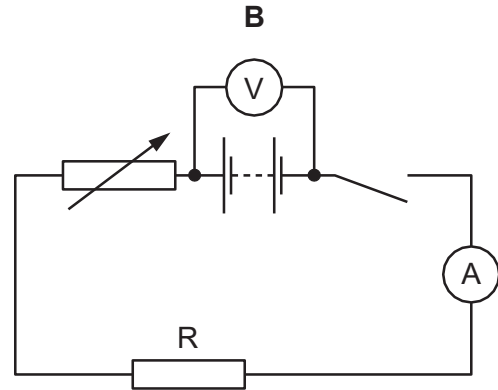
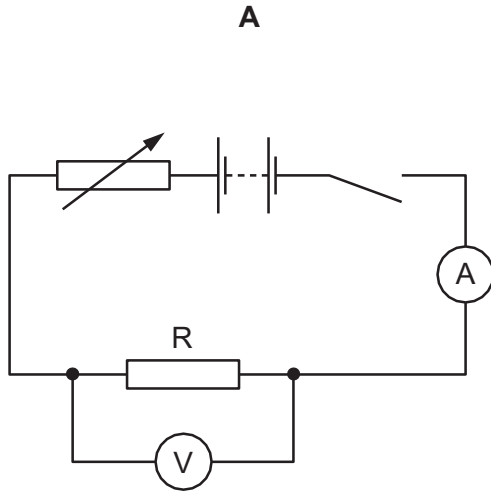
What is component X?

- A. a capacitor
- B. a light-dependent resistor
- C. a thermistor
- D. a variable resistor

## Question 7

A student carries out an experiment to investigate the resistance of a resistor  $R$ . She takes a series of readings of potential difference (p.d.) and current, and plots a graph of her results.

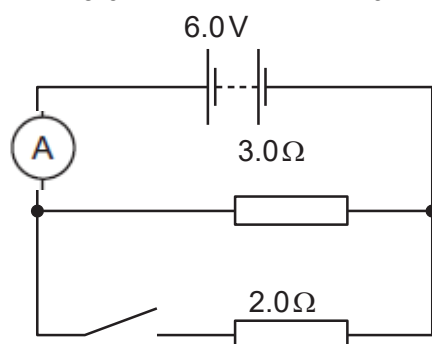
Which circuit should she use?





## Question 8

The diagram shows a circuit with a  $3.0\ \Omega$  resistor and a  $2.0\ \Omega$  resistor connected in parallel.



The switch is open, and the ammeter reads  $2.0\text{ A}$ .

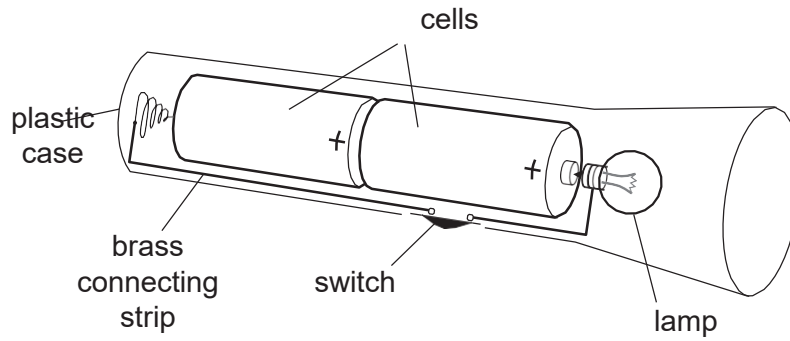
The switch is now closed and the ammeter reads the total current in both resistors.

What is the ammeter reading with the switch closed?

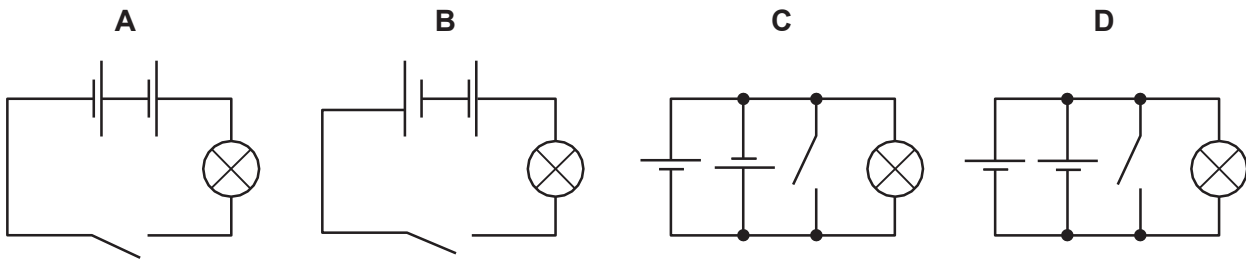
- A  $1.2\text{ A}$       B  $3.0\text{ A}$       C  $4.0\text{ A}$       D  $5.0\text{ A}$

## Question 9

The diagram shows a torch containing two cells, a switch and a lamp.

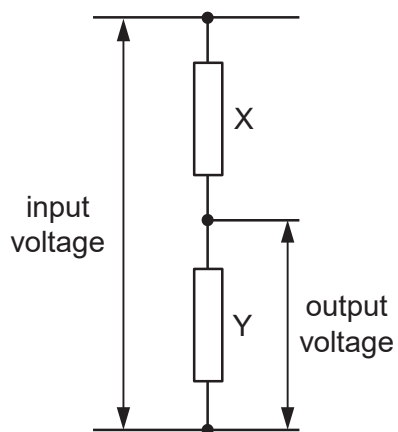


Which is the circuit diagram for the torch?



## Question 10

An engineer uses the potential divider shown in the diagram. He needs the output voltage to be one tenth ( $\frac{1}{10}$ ) of the input voltage.

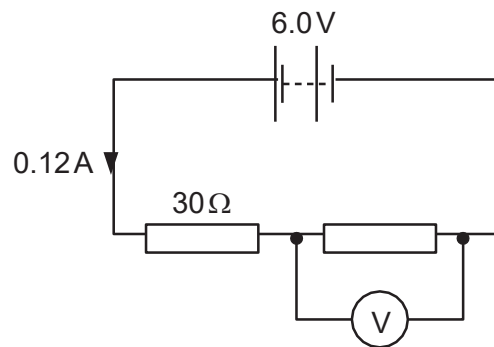


Which pair of values could he use for the two resistors X and Y?

	X/k $\Omega$	Y/k $\Omega$
A	1.0	9.0
B	1.0	10.0
C	9.0	1.0
D	10.0	1.0

## Question 11

A  $30\ \Omega$  resistor is connected in series with another resistor and a  $6.0\ \text{V}$  battery. The current in the circuit is  $0.12\ \text{A}$ . A voltmeter is connected across the other resistor.



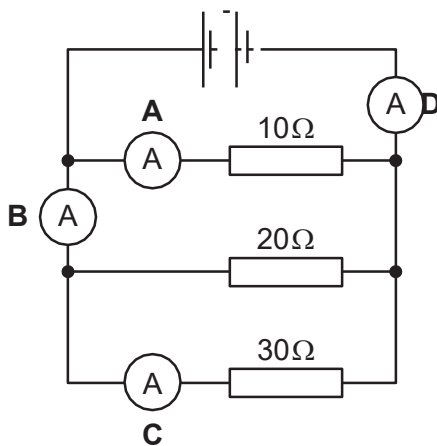
What is the reading on the voltmeter?

- A  $2.4\ \text{V}$       B  $3.6\ \text{V}$       C  $6.0\ \text{V}$       D  $9.6\ \text{V}$

## Question 12

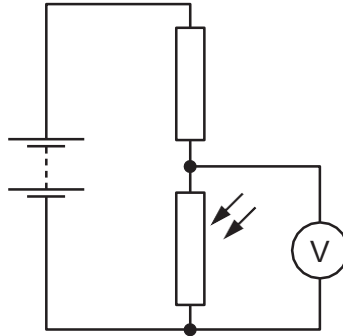
A circuit contains four ammeters **A**, **B**, **C** and **D**, and three resistors with different values.

Which ammeter shows the largest reading?



## Question 13

The diagram shows a circuit with a fixed resistor connected in series with a light-dependent resistor (LDR). A voltmeter is connected across the LDR.



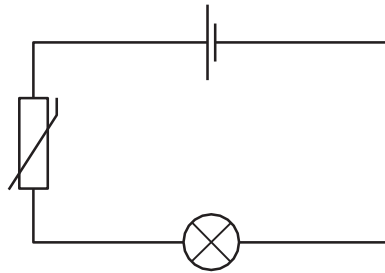
A bright lamp shines light onto the LDR. The lamp is then switched off and this causes the voltmeter reading to change.

Which row shows the change in the resistance of the LDR and the change in the voltmeter reading when the lamp is switched off?

	resistance of LDR	voltmeter reading
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

## Question 14

When the thermistor in the circuit below is heated, the current in the lamp increases.



Why does this happen?

- A. The resistance of the lamp decreases.
- B. The resistance of the lamp increases.
- C. The resistance of the thermistor decreases.
- D. The resistance of the thermistor increases.