Electric Circuits

Question Paper 1

Level	IGCSE
Subject	Physics (0625/0972)
Exam Board	Cambridge International Examinations (CIE)
Topic	General Physics
Sub-Topic	Electric Circuits
Booklet	Question Paper 1

Time allowed: **18 minutes**

Score: **/14**

Percentage: **/100**

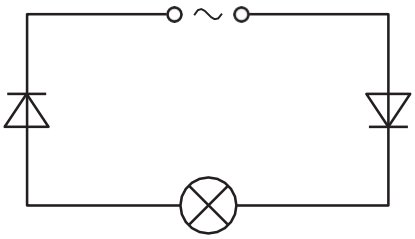
Grade Boundaries:

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

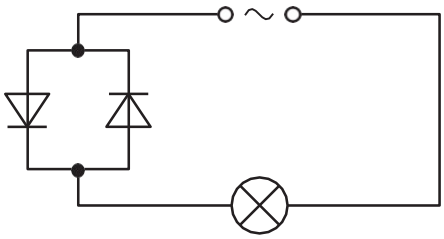
The four circuits shown all include an a.c. power supply, two diodes and a lamp.

In which circuit is there a rectified current in the lamp?

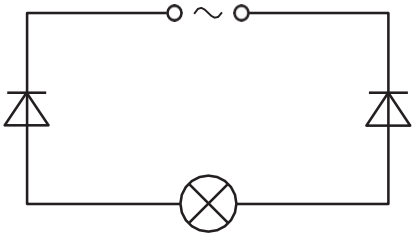
A



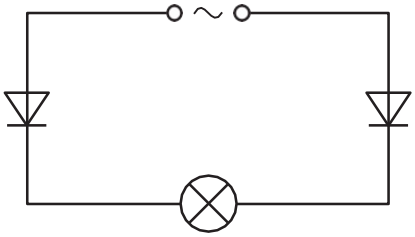
B



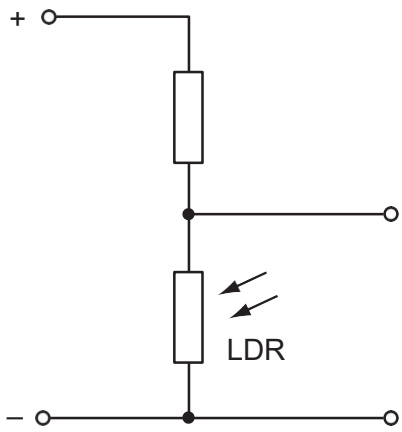
C



D



The diagram shows part of a circuit used to switch street lamps on and off automatically.



In the evening it gets dark.

Which row shows the effect on the resistance of the light-dependent resistor (LDR) and on the potential difference (p.d.) across it?

	resistance of LDR	p.d. across LDR
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

Question 3

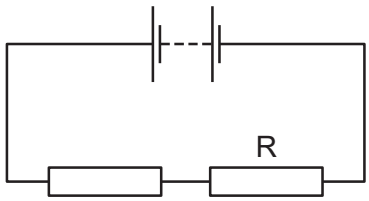
P and Q are the circuit symbols for two electrical components.

P Q

Which components are represented by P and by Q?

	P	Q
A	thermistor	fuse
B	thermistor	relay
C	variable resistor	fuse
D	variable resistor	relay

The diagram shows a battery connected to two resistors.



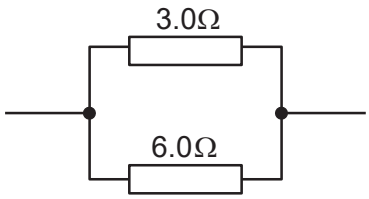
Four students separately measure the electromotive force (e.m.f.) of the battery, the current in the resistors, and the potential difference (p.d.) across resistor R.

Their results are shown in the table below.

Which row shows values with their correct units?

	e.m.f.	current	p.d.
A	3.0A	0.30V	1.5A
B	3.0A	0.30A	1.5V
C	3.0V	0.30V	1.5A
D	3.0V	0.30A	1.5V

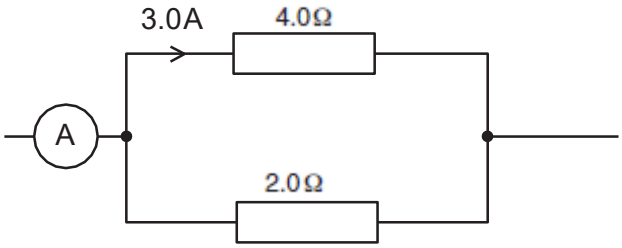
A 3.0 Ω resistor and a 6.0 Ω resistor are connected in parallel.



What is their combined resistance?

A 0.50 Ω B 2.0 Ω C 4.5 Ω D 9.0 Ω

The diagram shows part of an electrical circuit.



The current in the 4.0 Ω resistor is 3.0 A.

What is the current in the ammeter?

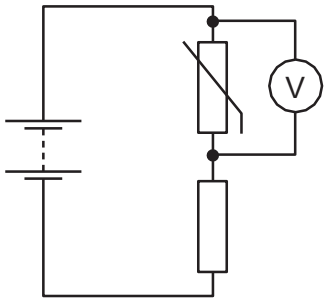
A. 4.5 A

B. 6.0 A

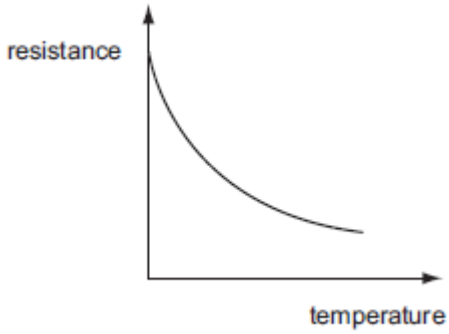
C. 9.0 A

D 12.0 A

The circuit diagram shows a thermistor in a potential divider. A voltmeter is connected across the thermistor.



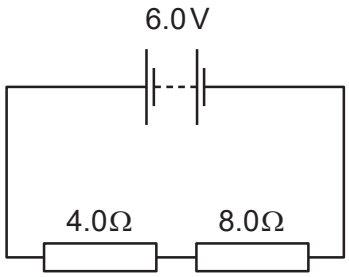
The graph shows how the resistance of the thermistor changes with temperature.



As the thermistor becomes warmer, what happens to its resistance and what happens to the reading on the voltmeter?

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

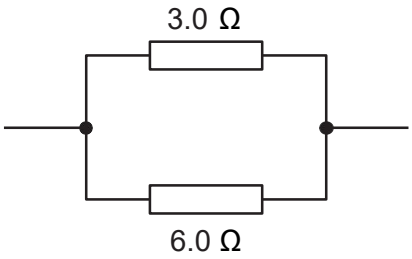
The circuit diagram shows a 4.0 Ω resistor and an 8.0 Ω resistor connected to a 6.0V battery.



What is the current in the battery?

A 0.50 A B 0.75 A C 1.5A D 2.0A

The diagram shows a 3.0 Ω resistor and a 6.0 Ω resistor connected in parallel.



What is the total resistance of this arrangement?

A less than 3.0 Ω

B 3.0Ω

C 4.5Ω

D more than 6.0 Ω

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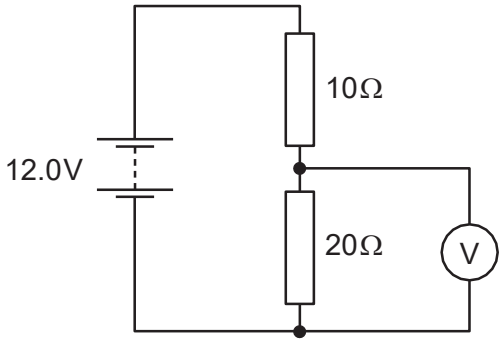
The diagram shows a 10 Ω resistor and a 20 Ω resistor connected in a potential divider circuit

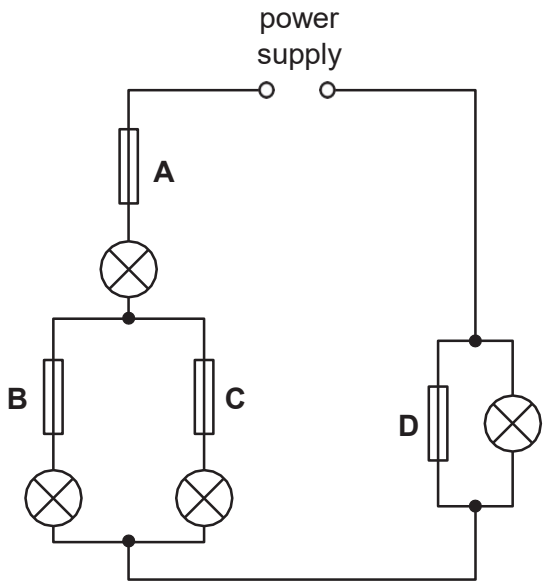


What is the reading on the voltmeter?

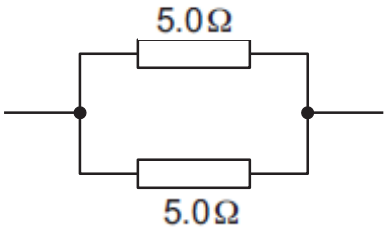
A 4.0V B 6.0V C 8.0V D 12.0V

In the circuit shown, only one of the fuses has blown, but none of the lamps is lit.

Which fuse has blown?



Two 5.0 Ω resistors are connected as shown in the diagram.



What is the total resistance of this combination?

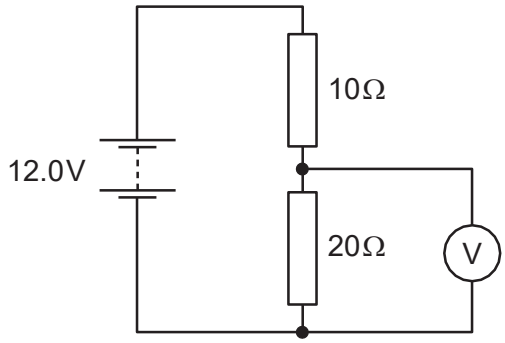
A. less than 5.0 Ω

B. 5.0 Ω

C. more than 5.0 Ω but less than 10.0 Ω

D 10.0 Ω

The diagram shows a 10 Ω resistor and a 20 Ω resistor connected in a potential divider circuit.



What is the reading on the voltmeter?

A 4.0 V B 6.0 V C 8.0 V D 12.0 V

In the circuit shown, only one of the fuses has blown, but none of the lamps is lit.

Which fuse has blown?