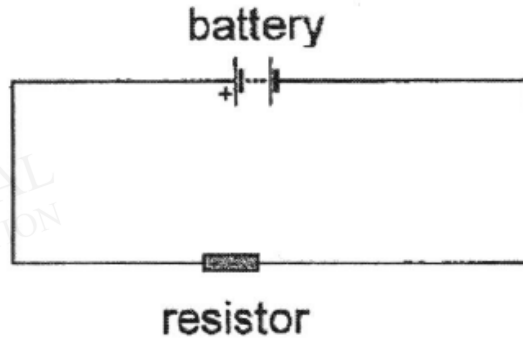


O Level Pure Physics MCQs

Current and DC Circuits Test 4.0

Q1

In the circuit below, 9.0 J of energy is supplied by a battery when 3.0 C of charge passes through it.

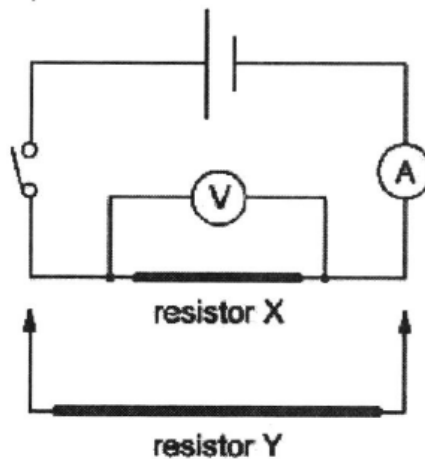


Which of the following statements is true?

- A The current flowing through the circuit is 3.0 A.
- B The electromotive force (e.m.f.) of the battery is 3.0 V.
- C The e.m.f. of the battery is 27 V.
- D The resistance of the resistor is 0.33 Ω .

Q2

A resistor **X** with resistance R is made from a length L of resistance wire with a cross-sectional area A . It is connected to a simple electrical circuit and the voltmeter and ammeter readings are recorded.

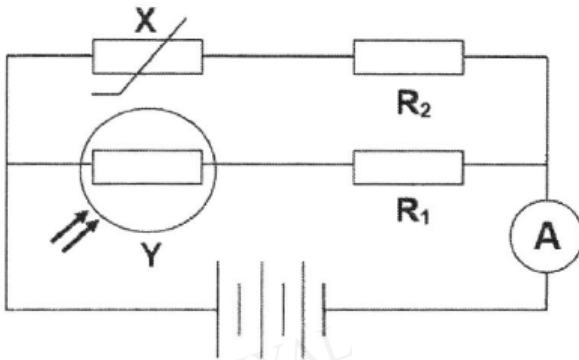


A second resistor **Y** is made from wire of the same material as **X**. It has length $2L$ and cross-sectional area A , and it is connected in parallel to wire **X**. Which of the following correctly describes the readings observed from the voltmeter and ammeter?

	<u>ammeter reading</u>	<u>voltmeter reading</u>
A	decrease	decrease
B	decrease	no change
C	increase	decrease
D	increase	no change

Q3

In the circuit shown, R_1 and R_2 are identical resistors.

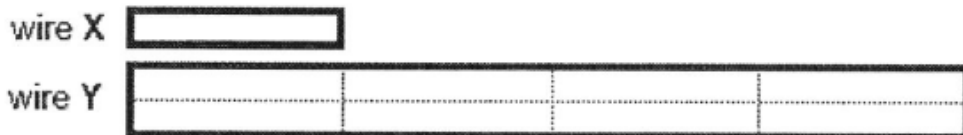


Which of the following changes to the electrical components X and Y will increase the reading of the ammeter by the greatest amount?

	<u>Component X</u>	<u>Component Y</u>
A	immerse completely in cold water	decrease the light intensity on Y
B	immerse completely in cold water	increase the light intensity on Y
C	immerse completely in hot water	decrease the light intensity on Y
D	immerse completely in hot water	increase the light intensity on Y

Q4

37. Wire X and Y are two wires made of the same material such that wire Y is twice as thick and four times longer than wire X .



What is the ratio of wire X 's resistance to wire Y 's resistance?

- A 1 : 1
- B 1 : 2
- C 1 : 4
- D 1 : 8

Q5

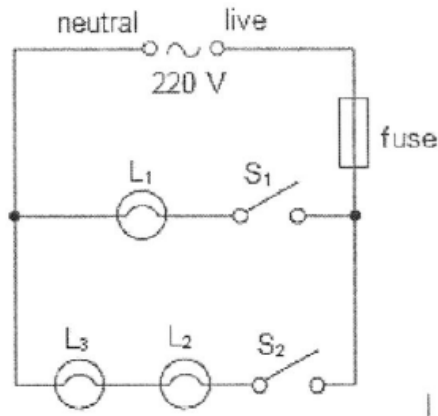
A 6.0 V battery is connected to a 3.0 M Ω resistor.

How much charge flows through the resistor in 20 s?

- A 0.50 μC
- B 2.0 μC
- C 10 μC
- D 40 μC

Q6

38. The figure below shows a part of the lighting circuit of a house.

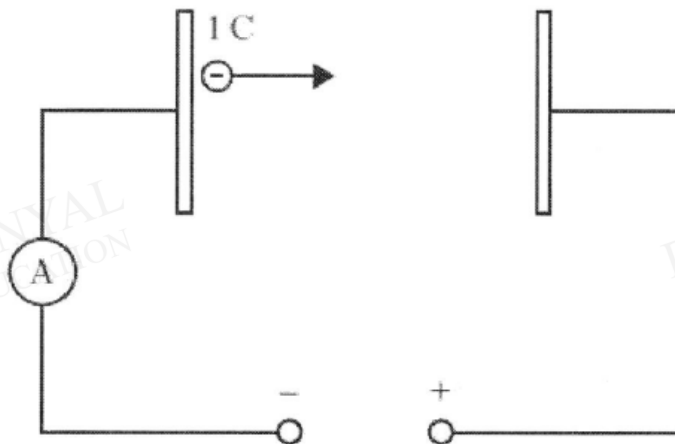


If all the bulbs are identical and they are rated at 200 W, 220 V, what is the suitable rating of the fuse when both S_1 and S_2 are closed?

- A 1 A
- B 2 A
- C 5 A
- D 10 A

Q7

One joule of work is done in moving one coulomb of charge between two plates as shown.



From the information given, which of the following statements must be true?

- A The distance between the plates is one metre.
- B The current in the circuit is one ampere.
- C The resistance of the circuit is one ohm.
- D The potential difference between the plates is one volt.

Q8

A piece of wire 0.50 m long has a cross-sectional area of 1.0 mm².

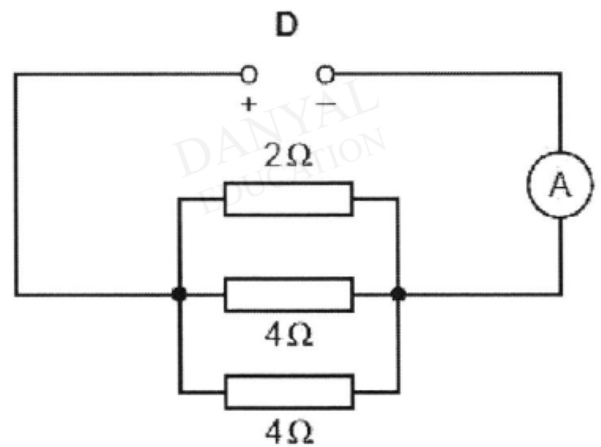
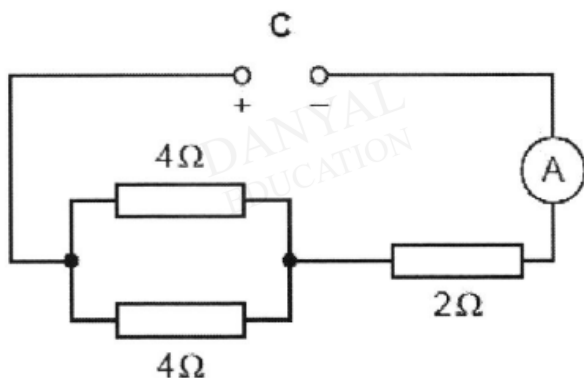
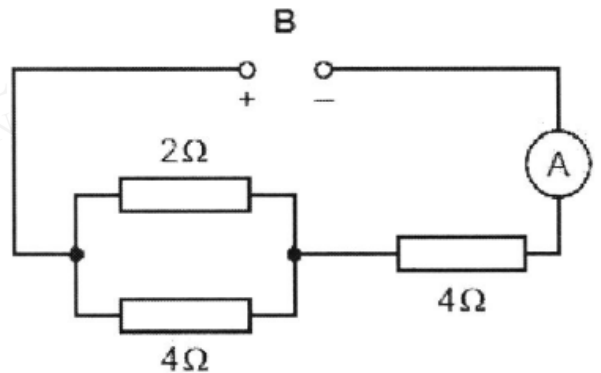
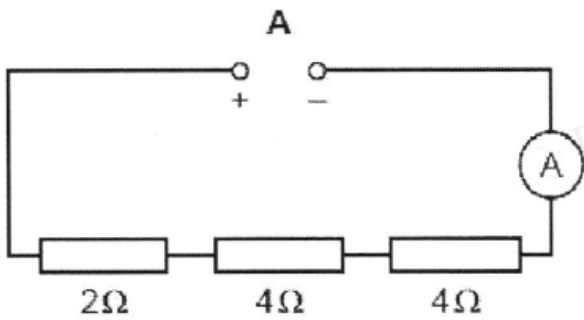
Which wire of the same material has twice the resistance?

	length	area/mm ²
A	0.25	1.0
B	0.25	2.0
C	0.50	0.5
D	0.50	2.0

Q9

4 An ammeter is connected to three resistors and a power supply.

Which arrangement of resistors gives the greatest ammeter reading?



Q10

An electrical quantity is defined as 'the energy converted by a source in driving a unit charge round a complete circuit.'

What is this quantity called?

- A current
- B electromotive force
- C potential difference
- D power

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Answers

Current and DC Circuits Test 4.0

- Q1 B
- Q2 D
- Q3 D
- Q4 B
- Q5 D
- Q6 B
- Q7 D
- Q8 C
- Q9 D
- Q10 B

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