O Level Pure Physics MCQs

Current and DC Circuits Test 5.0

Q1

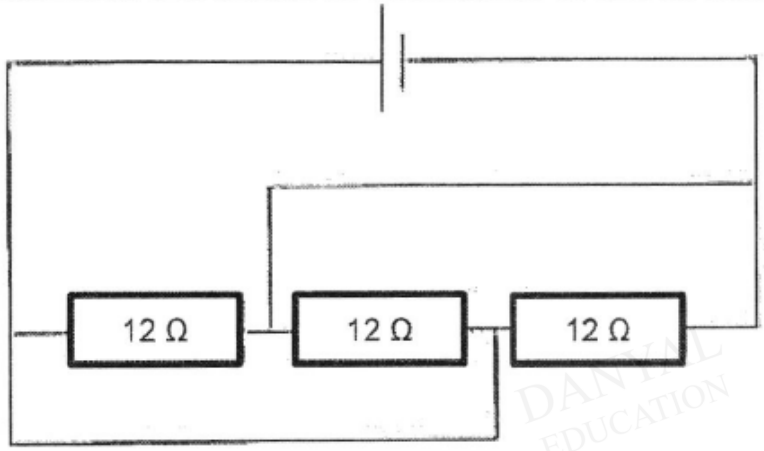
3 J of energy is dissipated from a circuit when 6 C of charge flows through the cell.

What is the e.m.f. of the cell?

A 0.5 V **B** 2 V **C** 4 V **D** 18 V

Q2

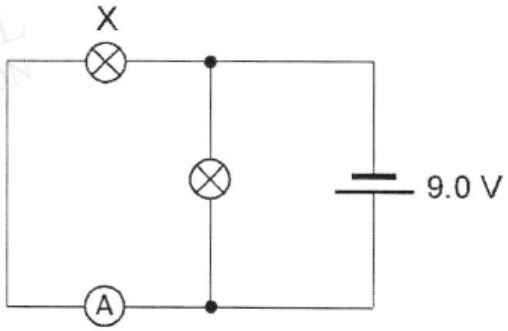
Calculate the effective resistance of the circuit.



A 4 Ω **B** 12 Ω **C** 18 Ω **D** 36 Ω

Q3

The diagram below shows a circuit which consists of a cell, an ammeter and two bulbs. The ammeter reading is 2.0 A and both bulbs are **not** identical.



What is the potential difference across the bulb X?

A 2.0 V **B** 4.5 V **C** 9.0 V **D** 18 V

Q4

Diagram 1 shows a potential divider circuit containing two 100 Ω resistors.

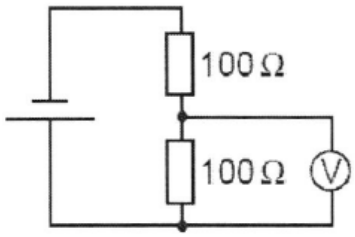


Diagram 1

One of the resistors is changed to 90 Ω, as shown in diagram 2.

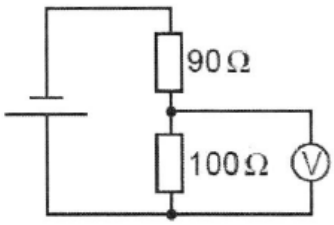


Diagram 2

How does the reading in the voltmeter change when this is done?

A It becomes zero.
B It decreases a little.
C It increases a little.
D It stays the same.

Q5

A series circuit consists of two cells and two fixed resistors. The current in the circuit needs to be increased. Which of the following actions **cannot** do so?

A replace the existing wires with thicker wires

B shorten the existing wires

C remove one of the resistors

D connect the two cells in parallel to each other in the circuit

Q6

Which of the following is equivalent to one coulomb?

A one ampere per volt

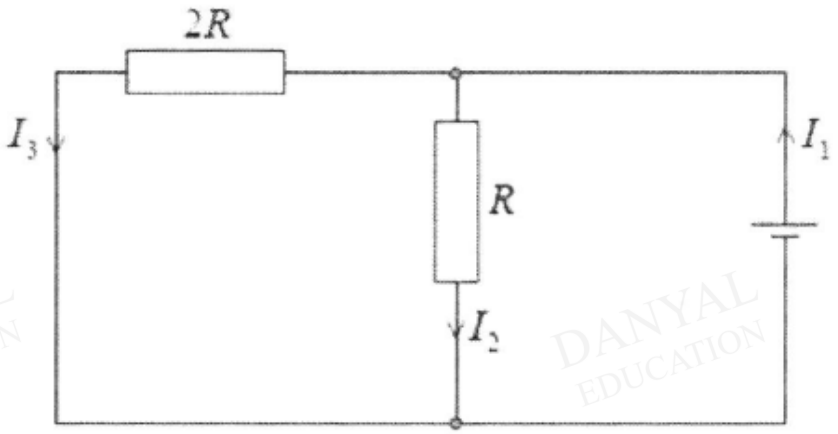
B one ampere second

C one volt ampere

D one volt per ampere

Q7

In the circuit shown below, the cell has negligible internal resistance.

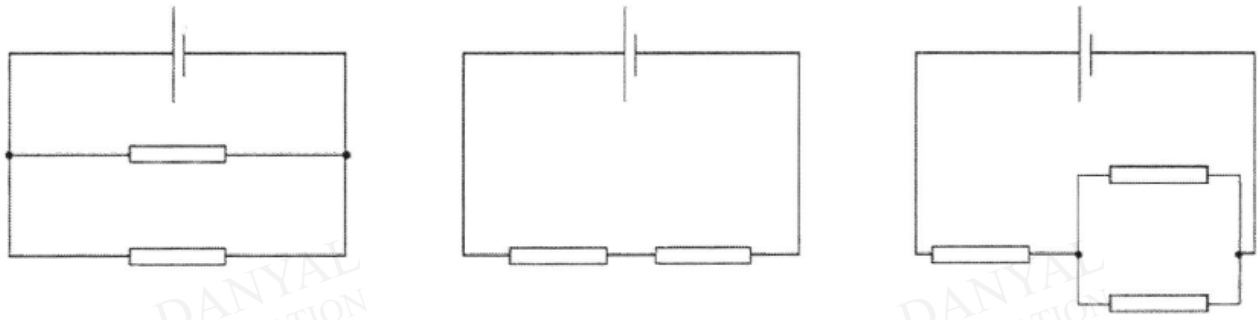


Which of the following equations is correct?

A $I_1 = 2I_2$
B $I_1 = 2I_3$
C $I_2 = 2I_3$
D $I_3 = 2I_1$

Q8

In the circuits below, the cells each have the same e.m.f. and zero internal resistance. All the resistors have the same resistance.



circuit X circuit Y circuit Z

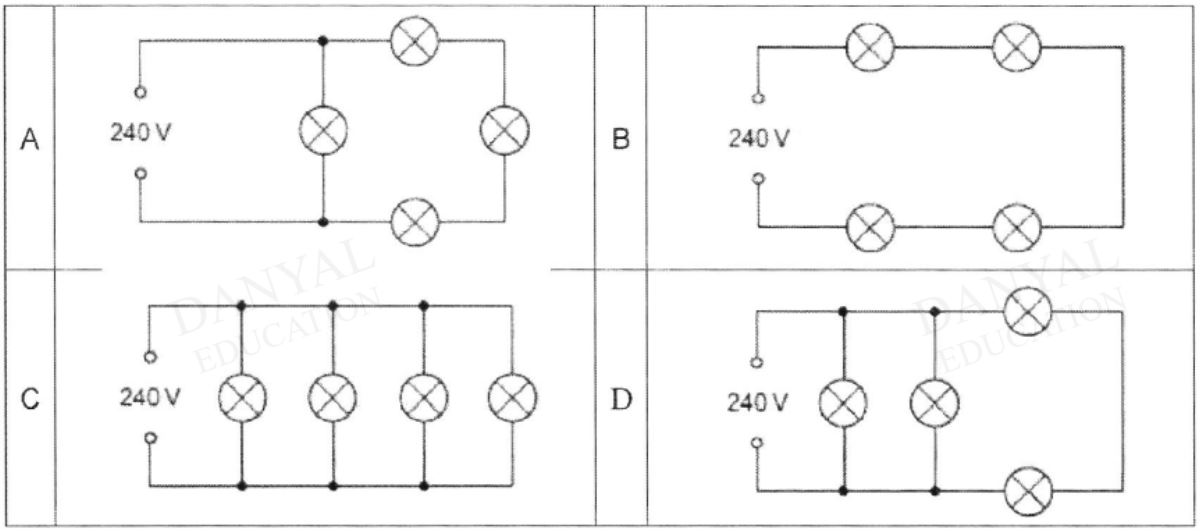
Which of the following gives the current through the cells in order of increasing magnitude?

	lowest current ⟶		highest current
A	X	Y	Z
B	Z	X	Y
C	Y	Z	X
D	Y	X	Z

Q9

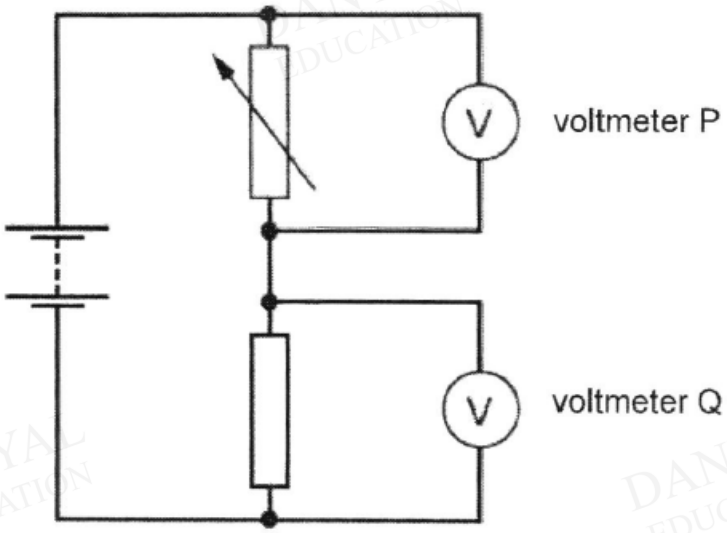
Four lamps are each labelled 240 V.

In which circuit do all four lamps have normal brightness?



Q10

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



The resistance of the variable resistor is decreased.
Which option shows what happens to the reading on each voltmeter?

	reading on Voltmeter P	reading on Voltmeter Q
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

Answers

Current and DC Circuits Test 5.0

Q1 A

Q2 A

Q3 C

Q4 C

Q5 D

Q6 B

Q7 C

Q8 C

Q9 C

10 B