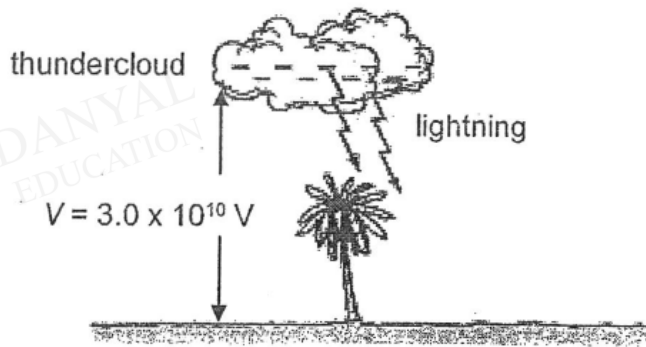


O Level Combined Physics MCQs

Current and DC Circuits Test 1.0

Q1

During a thunderstorm, lightning sent an electric charge of 90 C from a thundercloud to the earth as shown in the diagram below. The potential difference, V , between the thundercloud and the earth was 3.0×10^{10} V during the discharge.

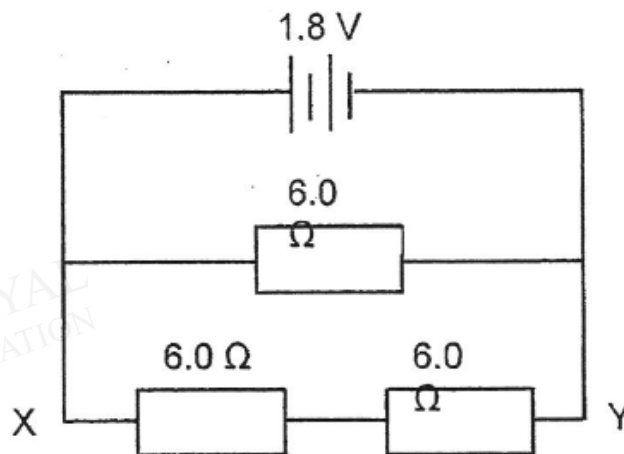


How much energy was produced during the lightning?

- | | | | |
|---|------------------------|---|------------------------|
| A | 3.0×10^{-9} J | B | 3.3×10^8 J |
| C | 2.7×10^{12} J | D | 2.4×10^{14} J |

Q2

A 1.8 V power supply is connected to a circuit of three 6.0 Ω resistors.



What is the potential difference across XY?

- | | | | |
|---|--------|---|--------|
| A | 0.60 V | B | 0.90 V |
| C | 1.2 V | D | 1.8 V |

Q3

How could the unit of potential difference, the volt, also be written?

- (A) A/s (C) C/A
 (B) C/J (D) J/C

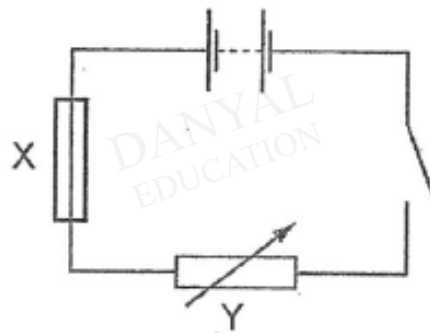
Q4

A student uses a length of wire as a resistor. He discovers that the resistance of the wire is too small. What changes to the length and thickness can be made to the wire to make the resistance of the wire higher?

	length	thickness
(A)	longer	thicker
(B)	longer	thinner
(C)	shorter	thicker
(D)	shorter	thinner

Q5

Kevin sets up the circuit as shown below.



What is the purpose of component X and Y?

	component X	component Y
(A)	to prevent excessive current	to change the resistance depending on temperature
(B)	to prevent excessive current	to vary the current in the circuit
(C)	to switch the current on/off	to change the resistance depending on temperature
(D)	to switch the current on/off	to vary the current in the circuit

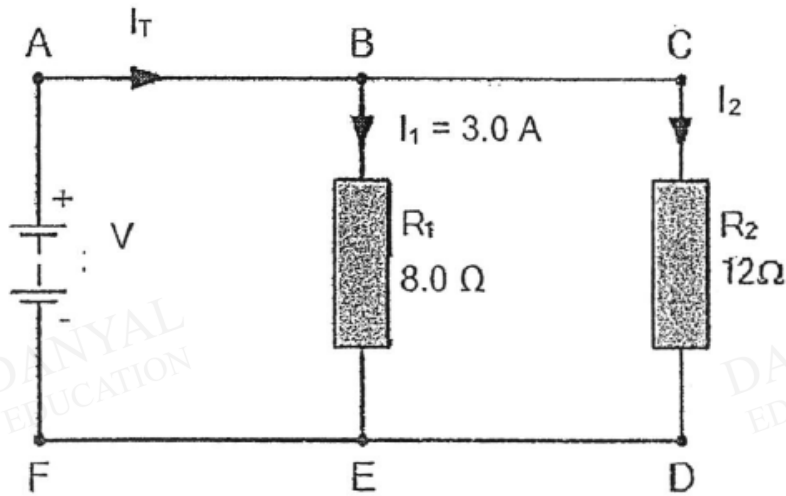
Q6

A wire with a resistivity of $2.7 \times 10^{-8} \Omega\text{m}$ is 2.0 m long and has a cross sectional area of 1.0 mm^2 . The resistance of the wire is

- A $1.4 \times 10^{14} \Omega$
 B $5.4 \times 10^{-8} \Omega$
 C $5.4 \times 10^8 \Omega$
 D 0.054Ω

Q7

Two resistors are connected to an electric cell with emf V .

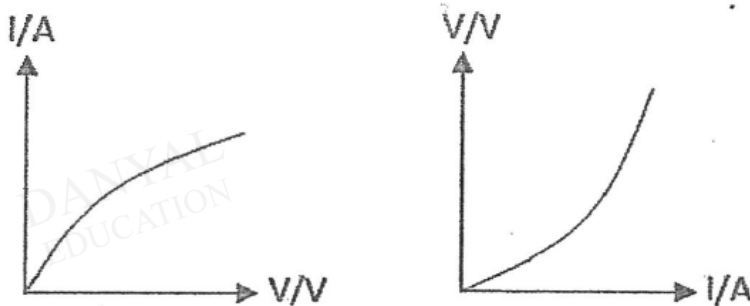


What is the current I_T ?

- A 2.0 A
- B 5.0 A
- C 6.0 A
- D 24 A

Q8

The following shows how the current I across a device changes as the potential difference V across it changes as well as how the potential difference V across the device changes as the current I through it changes.

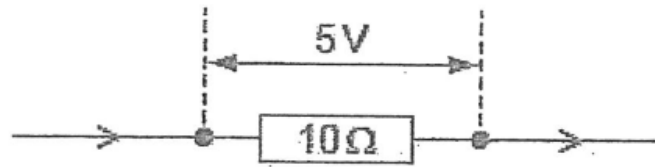


What is this device?

- A a semi-conductor diode
- B a copper wire
- C a filament lamp
- D a rubber rod

Q9

The potential difference (p.d.) across a $10\ \Omega$ resistor is $5\ \text{V}$.



How much charge passes through the $10\ \Omega$ resistor in 30 seconds?

A $2.0\ \text{C}$

B $15\ \text{C}$

C $60\ \text{C}$

D $1\ 500\ \text{C}$

Q10

Calculate the amount of current flowing through a point in a circuit when $30\ \text{mC}$ of charge flows through the point in $0.5\ \text{min}$.

A $0.001\ \text{A}$

B $0.06\ \text{A}$

C $1.0\ \text{A}$

D $60\ \text{A}$

Answers

Current and DC Circuits Test 1.0

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

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