

**O Level Pure Physics MCQs**

**Current and DC Circuits Test 1.0**

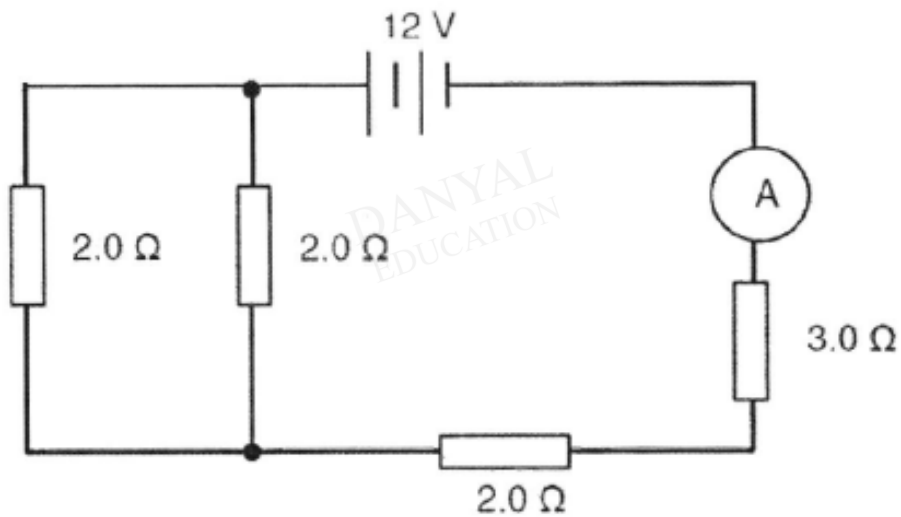
Q1

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

Q2

A circuit is set up in the diagram below.

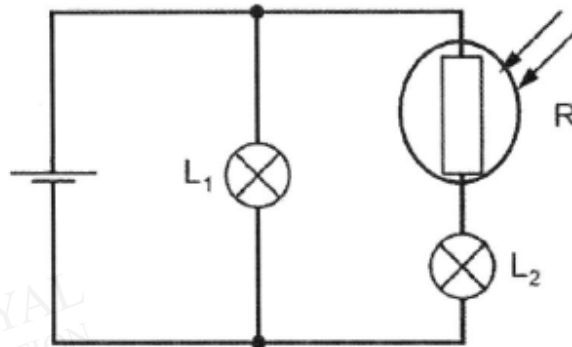


What is the ammeter reading in the circuit?

- A 0.50 A
- B 0.67 A
- C 1.5 A
- D 2.0 A

Q3

In the circuit shown, R is a light-dependent resistor.



The light intensity on R increases.  
 What happens to the brightness of the two lamps L<sub>1</sub> and L<sub>2</sub>?

	L <sub>1</sub>	L <sub>2</sub>
<b>A</b>	decreases	decreases
<b>B</b>	decreases	increases
<b>C</b>	stays the same	decreases
<b>D</b>	stays the same	increases

Q4

The bulb in a lamp is rated 2 V, 1 W, while the bulb in an oven is rated 220 V, 10 W. What will happen when both the lamp and oven are connected in series across a 220 V operating supply?

- A** The bulb in the lamp will blow immediately, and no current will flow in the circuit.
- B** The bulb in the lamp will appear to operate normally, while the bulb in the oven will emit a weak light.
- C** The bulb in the lamp will emit very little light, while the bulb in the oven will appear to operate normally.
- D** Both bulbs will operate at normal brightness.

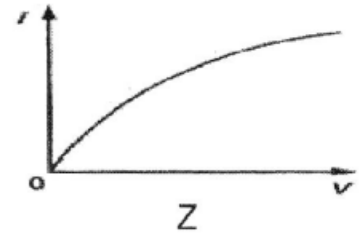
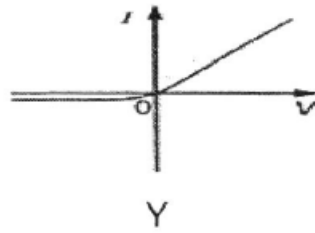
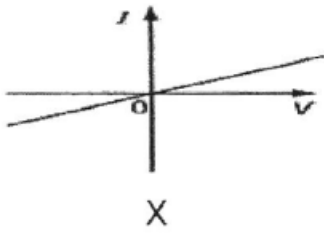
Q5

During a thunderstorm, a bolt of lightning sends out an electric charge of 20 C from a thundercloud to the earth. If the energy produced by the lightning is about 500 MJ, determine the potential difference between the thundercloud and the earth.

- A** 25 MV
- B** 500 MV
- C** 10000 MV
- D** 40000 MV

Q6

Three graphs X, Y and Z show the I-V characteristics for three different components.



A student made the following statements:

- X is an ohmic device whereas Y and Z are non-ohmic devices.
- Gradient of graph X gives the resistance of X.
- Y is a semiconductor diode and Z is a thermistor.

How many of the above statements is/are correct?

- A 0                      B 1                      C 2                      D 3

Q7

In Fig. 32.1, the current that flows through the point X is 0.50 A.

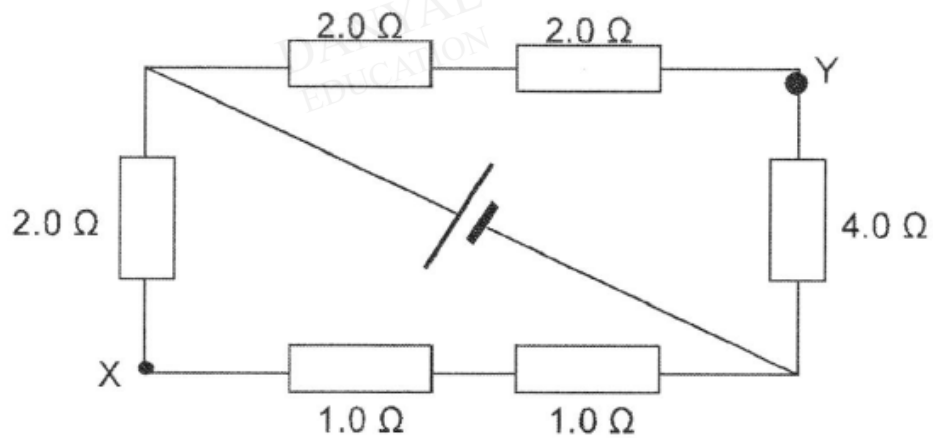


Fig. 32.1

Determine the current that flows through Y.

- A 0.25 A                      B 0.50 A                      C 1.0 A                      D 1.3 A

Q8

A lightning strike was discharged in  $1.2 \times 10^{-4}$  s with a charge of 700 C that travels from the cloud to a building.

What is the number of electrons that travels from the cloud to the building?  
(Each electron carries  $1.6 \times 10^{-19}$  C)

- |          |                      |          |                      |
|----------|----------------------|----------|----------------------|
| <b>A</b> | $4.1 \times 10^6$    | <b>B</b> | $6.3 \times 10^{18}$ |
| <b>C</b> | $4.4 \times 10^{21}$ | <b>D</b> | $2.7 \times 10^{25}$ |

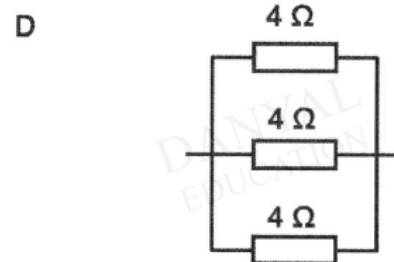
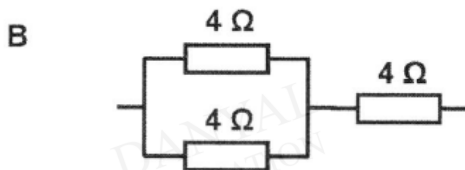
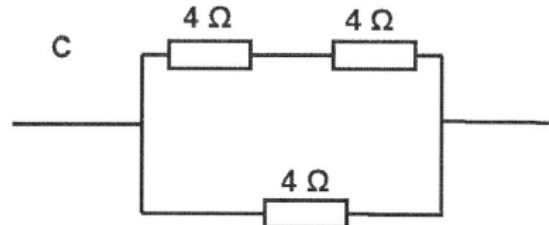
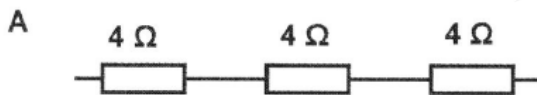
Q9

A current of 2.0 A passes through a cell of e.m.f 6.0 V.  
What is the electrical energy supplied by the cell in 3.0 s?

- |          |       |          |       |
|----------|-------|----------|-------|
| <b>A</b> | 1.0 J | <b>B</b> | 4.0 J |
| <b>C</b> | 9.0 J | <b>D</b> | 36 J  |

Q10

Three  $4.0 \Omega$  resistors are connected as shown below. Which of the following connections gives the lowest effective resistance?



**Answers**

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

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