Practice Question Set For GCSE
Subject : Physics
Paper-2 Topic :10_ Electricity And Circuits

Name of the Student:_____
Max. Marks : 24 Marks **Time : 24 Minutes**

Q1.

An electric fire is connected to a 230 V mains supply.

A current of 9.0 A is supplied to the fire.

Calculate the power supplied to the fire.

Use the equation

power = current × voltage

(2)

power = ... W

(Total for question = 2 marks)

Q2.

A wire in a circuit carries a current of 0.9 A.
Calculate the quantity of charge that flows through the wire in 50 s.

State the unit of charge with your answer.

Use the equation

charge = current × time

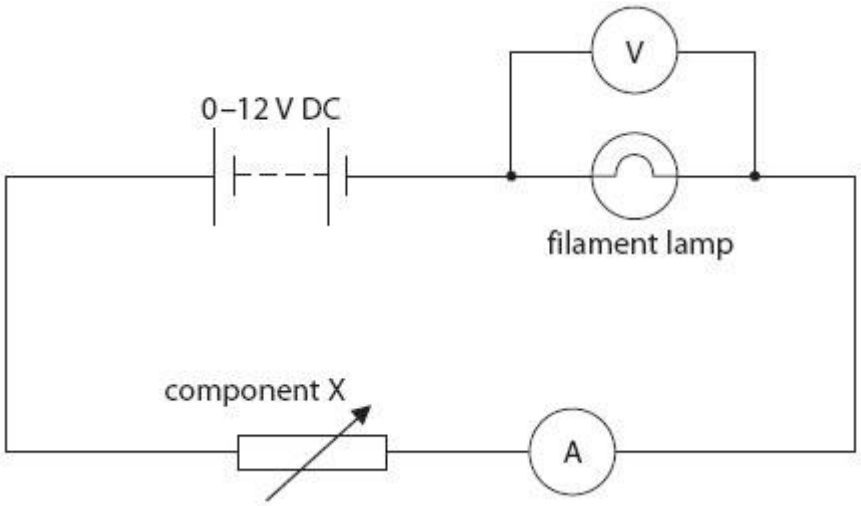
(3)

quantity of charge = ... unit .....

(Total for question = 3 marks)

Q3.

A student sets up an experiment to measure the potential difference (voltage) across a filament lamp.
She changes the current through the lamp.
The diagram shows the circuit she used.



(c) Calculate the resistance of the lamp when the current is 0.44 A and the potential difference is 10.0 V.

(2)

$$R = \frac{V}{I}$$

resistance = ...**Ω**

Q4.

Figure 9 shows a lamp connected to a d.c. power supply.

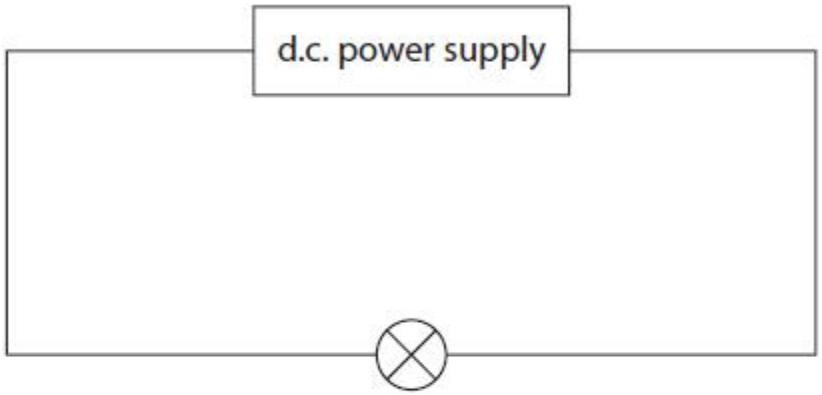


Figure 9

The power supply provides a potential difference (voltage) of 4.5 V.

The current in the lamp is 0.30 A.

(i) Calculate the resistance of the lamp.

Use the equation

$$R = \frac{V}{I}$$

(1)

resistance = ... Ω

(ii) Calculate the power supplied to the lamp.

(2)

power = ... W

(Total for question = 3 marks)

Q5.

The potential difference (voltage) across another piece of wire is 1.56 *V*.

The current in the wire is 0.45 *A*.

Calculate the resistance of this piece of wire.

Use the equation

$$V = I \times R$$

(2)

resistance = ... Ω

(Total for question = 2 marks)

Q6.

(i) There is a current of 0.46 A in a lamp.

Calculate the total charge that flows through the lamp in 30 seconds.
Use the equation

charge = current × time in seconds

(2)

charge = ... C

(ii) The voltage across the lamp is 6.0 V.

The current in the lamp is 0.46 A.
Calculate the energy transferred to the lamp in one minute.
Use the equation

energy transferred = current × voltage × time in seconds

(2)

energy transferred = ... J

(Total for question = 4 marks)

Q7.

A student investigates how the current in a lamp changes with the potential difference across the lamp.

The student uses the results to calculate the resistance of the lamp.

The results are shown in the table in Figure 9.

potential difference in V	current in A	resistance in Ω
1.0	0.09	11
2.0	0.14	14
3.0	0.18	17
4.0	0.22	18
5.0	0.26	
6.0	0.30	20

Figure 9

(i) One value of resistance is missing from the table in Figure 9.

Calculate the value of resistance that is missing from the table.

(3)

missing resistance = ... Ω

(ii) The student writes this conclusion:

'The resistance of the lamp is directly proportional to the potential difference.'

Comment on the student's conclusion.
Use information from Figure 9 in your answer.

(3)

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(Total for question = 6 marks)

Q8.

When the current in a lamp is 0.15 A, the resistance of the lamp is 40 Ω.

Calculate the voltage across the lamp.

Use the equation

$$V = I \times R$$

(2)

voltage = ... V

(Total for question = 2 marks)