3.2 Electricity: 10-minute Pack

Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 UK mains electricity is supplied to homes as alternating current (a.c.).

(a) State the frequency of the UK mains supply. **(1)**

(b) State the typical potential difference of the UK mains supply. **(1)**

(Total for Question 1 is 2 marks)

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2 A student measures the current through a lamp as 0.20 A when connected to a 3.0 V battery. Calculate the resistance of the lamp using R = V / I.

(a) Substitute the values into the equation R = V / I. **(1)**

.....

(b) Compute R and give the unit. **(2)**

.....

(Total for Question 2 is 3 marks)

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3 A student measures the current through a simple circuit at three different points and records 0.50 A, 0.50 A and 0.50 A. The circuit contains one cell, one lamp and one resistor in a single loop.

(a) State whether these measurements are consistent with the circuit being series or parallel. **(1)**

(b) Explain why the current readings are the same at all three points. **(2)**

(Total for Question 3 is 3 marks)

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Mark scheme · 3.2 Electricity: 10-minute Pack

Question 1

(a) 50 Hz **B1**

(a) Answer: 50 Hz

(b) 230 V **B1**

(b) Answer: 230 V

Question 2

(a) substitutes: R = 3.0 / 0.20 **M1**

(a) Answer: R = 3.0 / 0.20

(b) does the division: 3.0 / 0.20 **M1**

(b) 15 ohm cao **A1**

(b) Answer: 15 ohm

Question 3

(a) series **B1**

(a) Answer: Series

(b) states that charge flows in a single loop so the same current passes every component **M1**

(b) there is only one path so current is equal at all points, oe **A1**

(b) Answer: Because the circuit is a single loop, there is only one path for charge to flow so the same current passes every point in the circuit.

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