

NAME
SCHOOL

INDEX NUMBER
DATE

HEATING EFFECT OF AN ELECTRIC CURRENT

1. 1999 Q5 P2

(a) A circuit consists of a battery, a metal wire, an ammeter and a switch connected in series. The switch is closed and the ammeter reading noted.

The metal wire is now heated. State the observations made on the ammeter reading and give a reason for your answer.

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b) An electric heater is made of a wire of resistance 100Ω and connected to a 240V mains supply. Determine the:

i) Power rating of the heater

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ii) Current flowing in the circuit.

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iii) Time taken for the heater to raise the temperature of 200g of water from 23°C to 95°C . (Specific heat capacity of water is $4200^{\circ}\text{K}^{-1}$)

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iv) Cost of using the heater for two hours a day for 30 days. (The power and lighting company charges Kshs 5.00 per kilowatt – hour).

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2. 2000 Q19 P1

An electric bulb rated, 40W is operating on 240V mains. Determine the resistance of its filament.

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3. 2001 Q18 P1

An electric heater rated 240V; 300w is to be connected to a 240V mains supply, through a 10A fuse. Determine whether the fuse is suitable or not.

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4. 2007 Q9 P2

A heater of resistance R_1 is rated P watts, V volts while another of resistance R_2 is rated 2P watts, $\frac{V}{2}$ volts. Determine R_1 / R_2 (3 marks)

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5. 2008 Q10 P2

A heating coil is rated 100W, 240V. At what rate would it dissipate energy if it is connected to a 220V supply? (3 marks)

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