Name of the Student:_____
Max. Marks : 20 Marks **Time : 20 Minutes**

Mark Schemes

Q1.

(a) brown

1

(b) outside / case is plastic / an insulator

accept is double insulated
accept non-conductor for plastic
*do **not** accept it / hairdryer is plastic*

1

(c) (i) (1) S_1

and no other

1

(2) S_1 and S_3

both required, either order

1

(ii) S_1 must be ON (for either heater to work)

*do **not** accept reference to 'fan' switch*

1

S_1 switches the fan on

1

(d) 1495

*allow **1** mark for correct substitution*
ie, 6.5 × 230

2

watt(s) or W

*an answer of 1.495 kW gains **3** marks*
although the unit is an independent mark for full credit
the unit and numerical value must be consistent
accept joules per second or J/s

1

[9]

Q2.

(a) transferred to surroundings / surrounding molecules / atmosphere

'it escapes' is insufficient

or

becomes dissipated / spread out

accept warms the surroundings
accept degraded / diluted
accept a correct description for surroundings eg to the washing machine
*do **not** accept transformed into heat on its own*

1

(b) a smaller <u>proportion / percentage</u> of the energy supplied is wasted

owtte
*accept a statement such as 'less energy is wasted' for **1** mark*
*do **not** accept costs less to run*
ignore references to uses less energy

2

(c) (i) 2.4 (p)

accept 2 p if it is clear from the working out this is rounded from 2.4 p
*allow **1** mark for correct substitution of correct values*
ie 0.2 × 12
*allow **1** mark for calculating cost at 40 °C (13.2 p)*
or
cost at 30 °C (10.8 p)

2

(ii) any **one** from:

- less electricity needed
  ignore answers in terms of the washing machine releasing less energy
  an answer in terms of the washing machine releasing CO_2 negates the mark
  *do **not** accept less energy is produced*
- fewer power stations needed
- less fuel is <u>burned</u>
  accept a correctly named fuel
  *do **not** accept less fuel is needed*

1

[6]

Q3.

(a) (rate of) <u>flow</u> of charge / electrons / ions

accept movement for flow
*do **not** accept flow of electricity*

1

(b) 7(.0)

accept 6.96 / 6.95 or an answer that would approximate to 6.96 if rounded
*allow **1** mark for obtaining correct power and changing to watts ie 1600*
or
*allow **2** marks for correct substitution and transformation*
ie 1600 ÷ 230
*an answer 0.00696 / 0.007 gains **2** marks*

*allow **1** mark for 1.6 / 230 or 1.7 / 230*
*an answer 7.39 or 7.4 gains **2** marks*

3

amp (ere)

accept A

1

[5]