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

Mark Schemes

Q1.

(a) (i) conduction

1

convection

1

correct order only

(ii) to keep the ceramic bricks hot for a longer time

1

(b) (i) $E = P \times t$

18.2

*allow **1** mark for correct substitution ie 2.6 × 7 provided that no subsequent step is shown*

2

(ii) 91 (p)
or their (b)(i) × 5 correctly calculated

accept £0.91

*do **not** accept 0.91 without £ sign*

1

(c) $E = m \times c \times \theta$

2 250 000

*allow **1** mark for correct substitution ie 120 × 750 × 25 provided that no subsequent step is shown*

answers 2250 kJ or 2.25 MJ gain both marks

2

[8]

Q2.

(a) $E = P \times t$

91 (p)

an answer £0.91 gains 3 marks

an answer 0.91 gains 2 marks

*allow **2** marks for energy transferred = 18.2 (kWh)*
or
substitution into 2 equations combined, ie 2.6 × 7 × 5
*allow **1** mark for correct substitution into E = P × t, ie E = 2.6 × 7*
or

*allow **1** mark for multiplying and correctly calculating an incorrect energy transfer value by 5*

3

(b) answers should be in terms of supply exceeding demand

accept there is a surplus / excess of electricity (at night)

1

(c) reduce (rate of) energy transfer (from ceramic bricks)

accept heat for energy

*do **not** accept no energy / heat escapes*

*do **not** accept answers in terms of lost / losing heat if this implies heat is wasted energy*

1

so keeping the (ceramic) bricks hot for longer

accept increase time that energy is transferred to the room

accept keep room warm for longer

or

to stop the casing getting too hot

accept so you do not get burnt (on the casing)

1

(d) $E = m \times c \times \theta$

120

*allow **1** mark for correct substitution*

ie 9 000 000 = m × 750 × 100

2

[8]

Q3.

(a) (i) food processor
hairdryer

both required and no other

either order

1

(ii) TV
Table lamp
Food processor

all required and no other

any order

1

(b) any **two** from:

- transfers / requires / uses more energy / power

  accept more electricity used

  accept higher power

- more electricity needs to be generated

- more (fossil) fuels (likely) to be burnt

accept a named fossil fuel

2

(c) (i) precise

this answer only

1

(ii) any **three** from:

- can look for trends / patterns
- help reduce energy use / consumption
- reduce bills

  accept save money
- identify appliances which use a lot of energy
- replace appliances with more efficient ones
- see effect of leaving appliances on (standby)

  to monitor usage is insufficient

  answers in terms of environment are insufficient

3

[8]