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

Mark Schemes

Q1.

(a) To reduce energy transfer to the surroundings

1

(b) scald / burn (to skin)

ignore risk of electric shock

1

(c) 1 °C

1

(d) 0.06 kg

1

(e)

*a numerical answer of 4400 scores **3** marks*

26 400 = 0.20 × c × 30

1

$$c = \frac{26\,400}{(0.20 \times 30)}$$

or

$$c = \frac{26\,400}{6}$$

1

c = 4400

1

J / kg °C

1

[8]

Q2.

(a) chemical

1

kinetic

1

in this order only

(b) $E_k = 0.5 \times 80 \times 12^2$

1

E_k = 5760 (J)

1

*an answer of 5760 (J) scores **2** marks*

(c) E = 0.040 × 480 × 50

1

E = 960 (J)

1

*an answer of 960 (J) scores **2** marks*

(d) increased

1

[7]

Q3.

(a) nucleus

1

neutron

1

gamma rays

1

in this order only

(b) $\frac{25\,000\,000}{2\,400\,000}$

1

11

*an answer of 10.4 with no working scores **1** mark*

1

*an answer of 11 scores **2** marks*

(c) any **two** from:

- waste is radioactive

  allow nuclear waste

- waste has a long half-life

  allow waste remains dangerous for a long time

- waste is toxic
- waste needs to be buried

  allow waste is difficult to dispose of

- risk of catastrophic accidents

  allow named accident e.g. Fukushima, Chernobyl, Three Mile Island

- fuel is non-renewable

2

(d) **similarity:**

(carbon dioxide concentration and global temperature have) both increased

allow they both show a positive correlation

1

difference:
the carbon dioxide (concentration) continues to increase whereas temperature (increase) levels off

allow carbon dioxide (concentration) increases more quickly than temperature (increase)

1

[9]