

Name of the Student: _____

Max. Marks : 17 Marks

Time : 17 Minutes

Mark Schemes

Q1.

- | | |
|--|---|
| (a) 80 | 1 |
| $E = 5.0 \times 4200 \times 80$ | 1 |
| $E = 1\,700\,000 \text{ (J)}$
<i>an answer of 1 700 000 (J) or</i>
<i>1 680 000 (J) scores 3 marks</i>
<i>allow 1 680 000</i> | 1 |
| (b) in part A the increase in internal energy raises the temperature of the water | 1 |
| in part B the increase in internal energy changes the state | 1 |
| without changing the temperature | 1 |
| (c) the heater would continue to transfer energy which would not be transferred to the water | 1 |
| so would raise the temperature of the device | 1 |
| causing it to be damaged | 1 |
| (d) brown | |
| blue | |
| green and yellow stripes | |
| <i>allow 1 mark for 2 correct</i> | 2 |
| (e) it stops the casing of the appliance becoming live | 1 |
| (f) $P = I^2 R$ | |
| $I = \sqrt{P/R}$ | 1 |

$$P = 2\,500 \text{ (W)}$$

1

$$I = \sqrt{(2\,500 / 17)}$$

1

$$I = 12.1267812$$

1

$$I = 12 \text{ (A)}$$

an answer of 12 (A) scores 5 marks

1

[17]