

Name of the Student: _____

Max. Marks : 25 Marks

Time : 25 Minutes

Mark Schemes

Q1.

(a) chemical 1

kinetic 1

in this order only(b) $E_k = 0.5 \times 80 \times 12^2$ 1 $E_k = 5760 \text{ (J)}$ 1*an answer of 5760 (J) scores 2 marks*(c) $E = 0.040 \times 480 \times 50$ 1 $E = 960 \text{ (J)}$ 1*an answer of 960 (J) scores 2 marks*

(d) increased 1

[7]**Q2.**(a) **Level 2:** The method would lead to the production of a valid outcome. Key steps are identified and logically sequenced. 3-4**Level 1:** The method would not necessarily lead to a valid outcome. Some relevant steps are identified, but links are not made clear. 1-2**No relevant content** 0**Indicative content**

- part fill a measuring cylinder with water
- measure initial volume
- place object in water
- measure final volume
- volume of object = final volume – initial volume

- fill a displacement / eureka can with water
- water level with spout
- place object in water
- collect displaced water
- measuring cylinder used to determine volume of displaced water

(b) $\text{density} = \frac{48.6}{18.0}$ 1

$\text{density} = 2.70 \text{ (g/cm}^3\text{)}$ 1

an answer of 2.70 (g/cm³) scores 2 marks

(c) limestone 1

(d) eye position when using measuring cylinder
or
 water level in can (at start) not at level of spout
or
 not all water displaced by stone is collected in container 1

(e) volume would be lower / higher 1

[9]

Q3.



(b) $E = 13 \times 230$ 1

$E = 2990 \text{ (J)}$ 1

an answer 2990 (J) scores 2 marks

(c) charge flow = current \times time
allow $Q = It$ 1

(d) $1.52 = I \times 0.40$ 1

$I = \frac{1.52}{0.40}$ 1

$I = 3.8 \text{ (A)}$ 1

an answer of 3.8 (A) scores 3 marks

(e) $E = 0.00175 \times 205\,000$ 1

$E = 359 \text{ (J)}$

*allow an answer that rounds to 360 (J) for **2** marks*

1

*an answer of 359 (J) scores **2** marks*

[9]