

Name of the Student: _____

Max. Marks : 23 Marks

Time : 23 Minutes

Mark Schemes

Q1.

- | | | |
|-----|---|------------|
| (a) | 0 to 25 cm ³ | 1 |
| (b) | control | 1 |
| (c) | 2 sets of data recorded from line of best fit to show that the product is the same in both cases (1600)
<i>allow for 1 mark one set of calculated data for one point on the line of best fit</i> | 2 |
| (d) | decreases | 1 |
| | increases | 1 |
| | increases | 1 |
| | | [7] |

Q2.

- | | | |
|-----|--|---|
| (a) | Student A's measurements had a higher resolution | 1 |
| | Student B was more likely to misread the temperature | 1 |
| (b) | a random error | 1 |
| (c) | 8.4 °C | 1 |
| (d) | 740 (seconds)
<i>allow answers in the range 730 – 780</i> | 1 |
| (e) | 0.40 × 199 000 | 1 |
| | 79 600 (J) | 1 |
| | <i>accept 79 600 (J) with no working shown for 2 marks</i> | |

- (f) stearic acid has a higher temperature than the surroundings
accept stearic acid is hotter than the surroundings 1
- temperature will decrease until stearic acid is the same as the room temperature / surroundings 1
- [9]

Q3.

- (a) dependent 1

- (b) (probe) C
allow 103.2 1

largest difference between reading and actual temperature
reason only scores if C chosen
accept larger
it is 3.2 greater is insufficient
comparing C with only one other probe is insufficient 1

- (c) (i) 12(°C)
accept a value between 12.0 and 12.2 inclusive 1

- (ii) 140 (seconds)
accept an answer between 130 and 150 inclusive 1

temperature starts to rise
only scores if time mark awarded
accept the temperature was lowest (at this time) 1

- (iii) increase
accept faster (rate) 1

[7]