**Partially marking scheme**

**I-1. [6.0 points]**

**I-1-1 [1.25 points]**  0.25 points for each of the lengths measure.

**I-1-2.[2.5 points]**

* 0.25 each for drawing axes, writing down quantity and unit 🡪 0.5
* 1.5 if all 5 measurement points are presented in the graph
* 0.5 for drawing the best fitted line

**I-1-3. [1.25 points]**

* 1.0 for calculating the slope A (within 10% error)
* 0.5 for calculating the slope A (within 0% error)
* 0.25 for reading the intercept B

**I-1-4. [1.0 point]** Calculate the spring constant in N/m. (Assume that the gravitational acceleration is 9.81 m/s2)

* 0.5 for the formula to get the spring constant
* 0.5 for calculating the value in N/m

**I-2. [6.0 points]**

**I-2-1.** **[2.0 points]**

* 0.25 each for measuring the volume without weights immersed 🡪 0.5
* 0.5 each for measuring the volume with weights immersed 🡪 1.0
* 0.25 each for calculating the differences 🡪 0.5

**I-2-2.** **[2.0 points]**.

* 0.25 each for measuring the length before emersion 🡪 0.5
* 0.25 each for measuring the length for 2 and 3 weights immersed for apple juice 🡪 0.5
* 0.25 each for measuring the length for 2 and 3 weights immersed for mandarin juice 🡪 0.5
* 0.125 each for calculating the length differences 🡪 0.5

**I-2-3.** **[2.0 point]**

* 0.5 each for calculating the buoyant force value in N 🡪 2.0

**I-3. [2.0 points]** Calculate the average densities of the apple juice and mandarin juice respectively.

* 0.25 each for calculating the density using volumes and buoyant forces 🡪 1.0
* 0.5 each for calculating the average density (if between 0.70 g/cm3 and 1.30 g/cm3)