**Name of the Student**:_____
**Max. Marks : 25 Marks** **Time : 25 Minutes**

Mark Schemes

## Q1.

(a) 0 to 25 $cm^3$

**1**

(b) temperature

**1**

(c) 101 000 × 12 = constant

**1**

constant = 1 212 000 (Pa $cm^3$)

**1**

(d) p × 24 = 1 212 000
*allow ecf from question (c)*

**1**

$$p = \frac{1\,212\,000}{24}$$

**1**

p = 50 500 (Pa)

**1**

(e) there is more space between the gas particles

**1**

**[8]**

## 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:**

- record the initial volume of air
- record the initial pressure
- push the plunger of the syringe
- to decrease the volume of air

- read the new value on the pressure gauge
- record the new value of the volume
- repeat for different volumes

(b) (when the volume is halved) the pressure doubles

*allow for **1** mark when the volume is halved the pressure increases*

**2**

(c) kinetic energy

**1**

speed

**1**

**[8]**

## Q3.

(a) greater than

**1**

less than

**1**

*in this order only*

(b) <u>boiling</u>

*ignore evaporation*

**1**

temperature is constant

*allow temperature remains the same*

**1**

(c)

*a correct answer that rounds to 140 000 (J) scores **2** marks*

E = 0.063 × 2 260 000

**1**

E = 140 000 (J)

*allow 142 380 (J)*

**1**

(d)

*an answer of 0.6 scores **2** marks*

$$\text{density} = \frac{0.063}{0.105}$$

**1**

density = 0.6

**1**

kg / $m^3$

**1**

**[9]**