Name of the Student:_____
Max. Marks : 17 Marks **Time : 17 Minutes**

Mark Schemes

Q1.

Question number	Answer	Additional guidance	Mark
	calculation of change in volume (1) (530 cm^3 – 490 cm^3) = 40 (cm^3)	measurement mark – using scale	**(4)** **A02**
	substitution (1) $7.9 = \frac{mass}{40}$	allow use of incorrect volume	
	rearrangement and evaluation (1) (mass = 7.9 x 40) (mass =) 316 (g)	answers without working 316 scores 3 marks 0.316 kg scores 3 marks 316 to any other power of 10 scores 2 marks 4187 or 3871 scores 2 marks (incorrect volume)	
	evaluation to 2 sig fig (1) 320 (g)	any answer written to 2sf independent mark answers without working 320 scores 4 marks 320 to any other power of ten scores 3 marks 4200 scores 3 marks 3900 scores 3 marks	

Q2.

Question number	Answer	Additional guidance	Mark
	substitution (1) (P_2=) $\frac{120 \times 2500}{1600}$ evaluation (1) 190 (kPa)	award full marks for the correct answer without working accept values that round to 190; e.g.187.5, 188, 187	**(2)**

Q3.

Question number	Answer	Additional guidance	Mark
(i)	substitution (1) $P_1 = \frac{105 \times 2.3}{0.2}$ evaluation (1) $P_1 = 1200$ (kPa)	 allow values that round to 1200 e.g. 1207.5 award full marks for the correct answer without working	**(2)** **AO2**

Question number	Answer	Additional guidance	Mark
(ii)	Use relevant information from table (1) relevant calculation (1) **either** (volume of 30 balloons =) 0.07 x 30 **or** (number of balloons =) $\frac{2.3}{0.07}$ **or** (volume per balloon=) $\frac{2.3}{30}$ comparison / supported conclusion (1) 2.1 is less than 2.3 Or 32 is more than 30 Or 0.077 is more than 0.07	2.3 used in a calculation or comparison 2.1 (m^3) scores MP2 only 32(.8) scores MP1 and MP2 0.077 (m^3) scores MP1 and MP2 32 therefore claim is correct	**(3)** **AO3**

Q4.

Question Number	Answer	Additional guidance	Mark
	substitute (1) $8.00 \times 14.5 = P_2 \times 1160$ rearrangement (1) $\frac{8.00 \times 14.5}{1160}$ ($=P_2$) evaluation 0.1 (MPa)	Allow 8.00 x 14.5 =116 for one mark award full marks for the correct answer without working	**(3)**

Q5.

Question number	Answer	Additional guidance	Mark
	substitution (1) 566 000 = 0.25 x L rearrangement (1) $\frac{566\ 000}{0.25}$ evaluation (1) 2 260 000 (J/kg)	substitution and rearrangement in either order award full marks for correct answer without working	**(3)**