becomes greater than the weight of the balloon. Hence, the balloon rises up under the influence of net upward force.

[C] Numericals:

(1) (a) $1\ l = 1000\ cm^3$ (1000 mL)

$\Rightarrow 1.28\ g \rightarrow 1000\ cm^3$

$\Rightarrow 1\ cm^3 = \_\_\_\ g$

$\Rightarrow \frac{1.28}{1000} = g$

$\Rightarrow 0.00128\ g/cm^{-3}$

$\Rightarrow 0.00128\ g\ cm^{-3}$

(b) $1.28 \rightarrow 1\ l$

$1\ l = 1000\ cm^3$

$[1\ cm^3 = \frac{1}{100}$

$1\ cm^3 = \frac{1}{1000000}\ m^3$

$1000\ cm^3 = \frac{1}{1000}\ m^3]$

$= \frac{1.28}{1000}\ kg \div \frac{1}{1000}\ m^3$

$= 1.28\ kg/m^3$

(2) Density = $1.11 kg\ m^{-3}$

(L x B x H)

Volume = 10 m x 7 m x 5 m

= 350 m.

Mass = Density x Volume

= 1.11 x 350

= 388.5 kg.

350
x 1.11
350
350 x
+ 350 x x
388.50

(3) $1g = \frac{1}{1000} kg$

$2.7g = \frac{2.7}{1000} = 2.7 \times 10^{-3} kg$

$1 cm^3 = 1000000^{-3} m^3$

$= 10^{-6} m^3$

$\rho kg\ m^{-3} = \frac{2.7 \times 10^{-3} kg}{10^{-6} m^3}$

(1) Density of aluminium = $2700 kg/m^3$

$= 2700 kg\ m^{-3}$

2.7 x 1000
1000

(4) 1kg = 1000 g

600kg = 600 × 1000

= 600000 g

$1 m^{-3} = 100 cm^{-3} = 100000 cm^{-3}$

$1 g/cm^{-3} = \frac{600000}{100000}$

$= 0.60 g/cm^{-3} = 0.60 g cm^{-3}$

(5) Mass of the zinc = 438.6 g

Volume = ~~200 cm³~~ 86 cm^3

$\text{Density} = \frac{\text{Mass}}{\text{Vol.}} = \frac{438.6}{86}$

$= 5.1 g cm^{-3}$

86 | 438.6 | 5.1
430
86
86
0

(6) Gas Mass = 150 g

Volume = 200 cm^3

$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$

$= \frac{150}{200}$

200 | 1500 | 0.75
1400
1000
1000
0

$= 0.75 g/cm^3$

$= 0.75 g cm^{-3}$

(c) $g/cm^3 \rightarrow kg/m^3$

$1000\,g = 1\,kg$

$0.75\,g = \frac{0.75}{1000}\,kg$

$1\,cm = \_\_\_\_\,m^3$

$1\,cm = \frac{1}{100}\,m$

$1\,cm^3 = \left(\frac{1}{100} \times \frac{1}{100} \times \frac{1}{100}\right)^3 = \frac{1}{1000000}\,m^3$

$\Rightarrow \frac{0.75}{1000} \div 1000000$

$\Rightarrow \frac{0.75}{1000} \times \frac{1}{1000000}$

$= 0.0075 \times \frac{1}{10000}$

$\Rightarrow \frac{0.75}{1000} \div \frac{1}{1000000}$

$\Rightarrow \frac{0.75}{1000} \times 1000000$

$\Rightarrow 0.75 \times 1000$

$\Rightarrow 750\,kg\,m^{-3}$