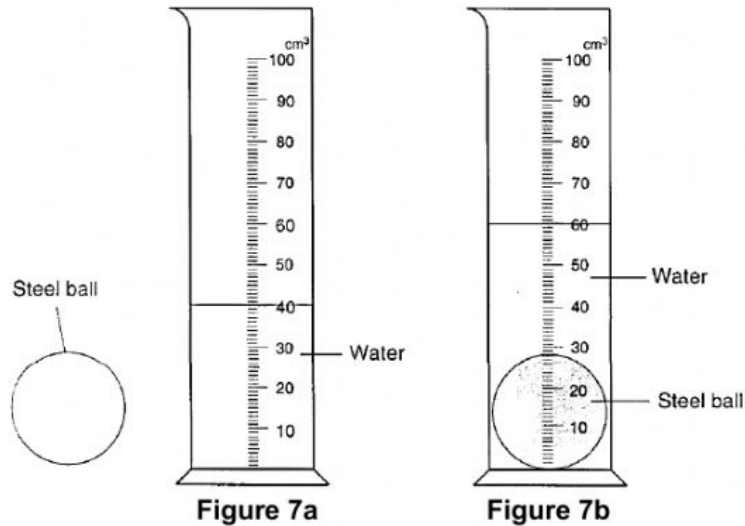**SECTION B**: Answer ALL the questions in the space provided.

21. (a) Faiz poured 40 cm$^3$ of water into a measuring cylinder as shown in **Figure 7a**.

He then put a steel ball with a mass of 150 g into the measuring cylinder as shown in **Figure 7b**.



**Figure 7a**          **Figure 7b**

(i)     Name the instrument used to measure the mass of the steel ball.

_____          [1]
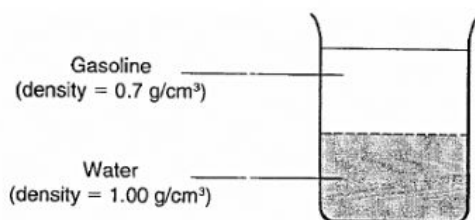
(ii)    Calculate the volume of the steel ball. Show your working.




_____ [2]

(iii)   Calculate the density of the steel ball. Show your working.




_____ [3]

(b) Faiz poured two liquids of different densities into a beaker. **Figure 8a** shows the two layers of liquids.

Gasoline
(density = 0.7 g/cm³)

Water
(density = 1.00 g/cm³)

**Figure 8a**

Explain why the gasoline is on top of the water.

_____ [1]

(c) **Table 3** shows the densities of three different solid blocks.

| Solid block | Density (g/cm³) |
|---|---|
| Plastic | 1.14 |
| Ice cube | 0.92 |
| Wood | 0.35 |

Faiz put one of the solid blocks in **Table 3** into the liquids in **Figure 8a**. The position of the block is labelled X in **Figure 8b**.

Gasoline
(density = 0.7 g/cm³)

Water
(density = 1.00 g/cm³)

X
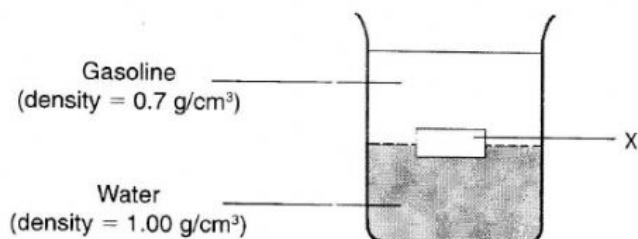
**Figure 8b**

Is solid block X, plastic, ice cube or wood? Explain why.

Solid block X is _____ [1]

Because _____ [2]