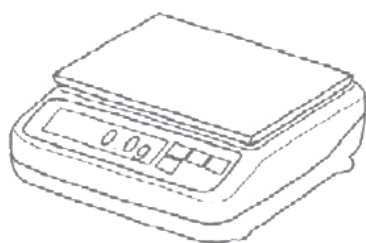
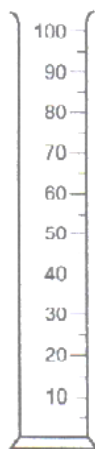


1. Nov/2022/Paper_22,23/No.4

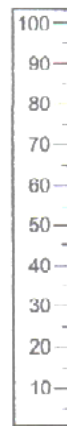
The diagram shows four pieces of laboratory apparatus.



balance



measuring cylinder



ruler



stop-watch

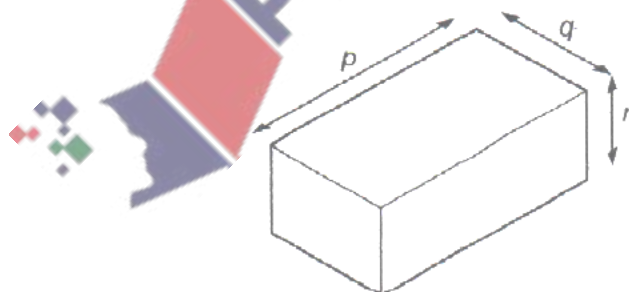
Which pieces of apparatus are used to find the density of a liquid?

- A balance and stop-watch
- B balance and measuring cylinder
- C measuring cylinder and ruler
- D stop-watch and ruler

$\rho = \frac{m}{V}$
 mass – use balance
 volume – use measuring cylinder

2. Nov/2022/Paper_21/No.4

The diagram shows the dimensions of a solid rectangular block of metal of mass m .



Which expression is used to calculate the density of the metal?

- A $\frac{m}{(p \times q)}$
- B $\frac{m}{(p \times q \times r)}$
- C $m \times p \times q$
- D $m \times p \times q \times r$

$\rho = \frac{m}{V}$
 $V = p \times q \times r$
 $\therefore \rho = \frac{m}{p \times q \times r}$

3. Nov/2022/Paper_33/No.2

A builder buys some tiles to repair a floor. He checks that the new tiles are the same size as the tiles on the floor.

The dimensions of the tiles on the floor are 25 cm × 20 cm × 0.30 cm.

The new tiles are shown in Fig. 2.1.

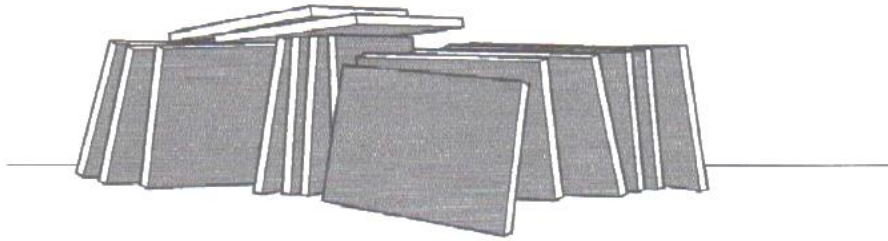


Fig. 2.1

- (a) (i) State the name of a suitable instrument for measuring the length and width of each tile.

ruler

[1]

- (ii) Describe how to determine the average thickness of **one** new tile.

- Place 10 tiles on top of each other.

- Measure total thickness of the 10 tiles.

- Divide total thickness by 10.

[3]

- (b) The dimensions of a tile are 25 cm × 20 cm × 0.30 cm.

The mass of the tile is 410 g.

- (i) Calculate the volume of the tile.

$$\begin{aligned} \text{Vol} &= l \times w \times h \\ &= 25 \times 20 \times 0.30 \\ &= 150 \text{ cm}^3 \end{aligned}$$

volume = 150 cm³ [1]

- (ii) Calculate the density of the tile. Include the unit in your answer.

$$\begin{aligned} \rho &= \frac{m}{V} \\ &= \frac{410 \text{ g}}{150 \text{ cm}^3} \\ &= 2.7 \text{ g/cm}^3 \end{aligned}$$

density = 2.7 unit g/cm³ [4]

- (iii) Calculate the weight of the tile.

$$\begin{aligned} W &= m \times g & m &= \frac{410 \text{ g}}{1000} = 0.41 \text{ kg} \\ &= 0.41 \times 10 \\ &= \underline{\underline{4.1 \text{ N}}} \end{aligned}$$

weight = 4.1 N [3]

[Total: 12]