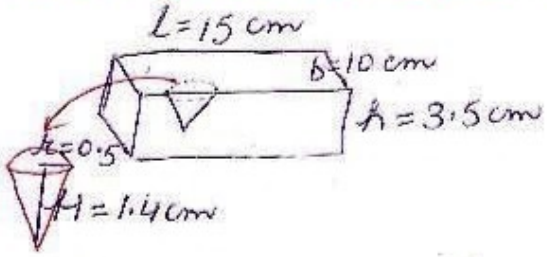
④



volume of wood used
= vol of cuboid
− vol of 4 conical depr.

$= lbh - 4 \times \frac{1}{3}\pi r^2 H$

$= 15 \times 10 \times 3.5 - \frac{4}{3} \times \frac{22}{7} \times \frac{1}{2} \times \frac{1}{2} \times 1.4$

$= 15 \times 35 - \frac{22 \times 2}{3}$

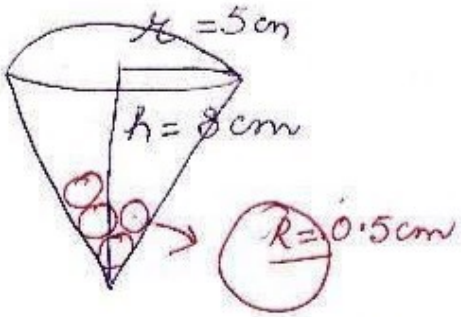
$= 525 - \frac{4.4}{3}$

$= \frac{1575 - 4.4}{3}$

$= \frac{1570.6}{3}$

$= 523.53 \text{ cm}^3$

⑤



no. of spherical lead shots

$= \frac{\frac{1}{4} \text{ volume of con. vessel}}{\text{vol. of 1 spherical shot}}$

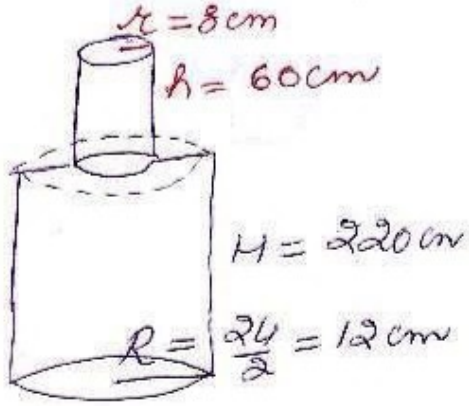
$= \frac{\frac{1}{4} \times \frac{1}{3}\pi r^2 h}{\frac{4}{3}\pi R^3}$

$= \frac{r^2 h}{16 R^3}$

$= \frac{5 \times 5 \times 8^4}{16 \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}}$

$= 100$

⑥



total volume of pole
= vol of 2 cylinders

$= \pi R^2 H + \pi r^2 h$

$= \pi (R^2 H + r^2 h)$

$= 3.14 (12 \times 12 \times 220 + 8 \times 8 \times 60)$

$= 3.14 \times 4 \times 4 \times 20 (3 \times 3 \times 11 + 2 \times 2 \times 3)$

$= 3.14 \times 320 (99 + 12)$

$= 3.14 \times 320 \times 111$

$= 111532.8 \text{ cm}^3$

den. $= 8 \text{ g/cm}^3$

Mass $= V \times d$

$= 111532.8 \times 8$

$= 892262.4 \text{ g}$

$= 892.26 \text{ kg}$