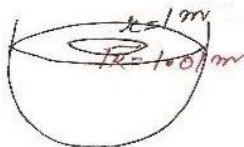




②



volume of sheet used  
 $= \frac{2}{3} \pi (R^3 - r^3)$   
 $= \frac{2}{3} \times \frac{22}{7} (1.01^3 - 1^3)$   
 $= \frac{44}{21} \times (1.030301 - 1)$   
 $= \frac{44}{21} \times 0.030301$   
 $= \frac{1.333244}{21}$   
 $= 0.063 \text{ m}^3$

$\Rightarrow r = \sqrt{39.69}$

vol. of air =  $\frac{2}{3} \pi r^3$   
 $= \frac{2}{3} \times \frac{22}{7} \times 6.3 \times 6.3 \times 6.3$   
 $= \frac{5239.08}{10}$   
 $= 523.908 \text{ m}^3$

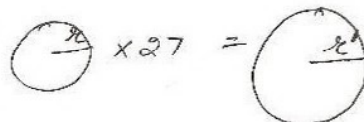
⑦



$SA = 154$   
 $4\pi r^2 = 154$   
 $4 \times \frac{22}{7} \times r^2 = 154$   
 $\Rightarrow r = \sqrt{\frac{7 \times 7}{2 \times 2}}$   
 $= \frac{7}{2} \text{ cm}$   
 vol. =  $\frac{4}{3} \pi r^3$

$= \frac{4 \times \frac{22}{7} \times 7 \times 7 \times 7}{3}$   
 $= \frac{539}{3}$   
 $= 179.67 \text{ cm}^3$

⑨



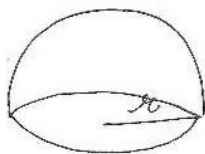
vol. of new sphere  
 $= \text{vol of 27 given spheres}$

$\frac{4}{3} \pi (r')^3 = 27 \times \frac{4}{3} \pi r^3$   
 $r' = \sqrt[3]{(3r)^3}$   
 $\Rightarrow r' = 3r \dots \textcircled{1}$

$\frac{S \text{ (Surface area of given sphere)}}{S' \text{ (Surface area of new sphere)}}$

$= \frac{4\pi r^2}{4\pi (r')^2}$   
 $= \frac{r^2}{(3r)^2}$   
 $= \frac{r^2}{9r^2}$   
 $= \frac{1}{9}$   
 $= 1:9$

⑧



cost of w.w. = Rs 498.96  
 rate of w.w per  $\text{m}^2$  = Rs 2  
 inner C.S.A =  $\frac{\text{cost}}{\text{rate}}$   
 $= \frac{498.96}{2}$   
 $= 249.48 \text{ m}^2$

inner C.S.A =  $249.48 \text{ m}^2$

$2\pi r^2 = 249.48$

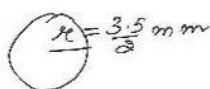
$2 \times \frac{22}{7} \times r^2 = 249.48$

$\Rightarrow r^2 = \frac{249.48 \times 7}{2 \times 22}$

$= \frac{436.59}{11}$

$= 39.69$

⑩



Capacity =  $\frac{4}{3} \pi r^3$

$= \frac{4}{3} \times \frac{22}{7} \times 3.5 \times 3.5 \times 3.5$

$= 22.46 \text{ mm}^3$