(1) We know that:

cylinder painted area = $2\pi rh + \pi r^2$

Cone painted area $\Rightarrow$ πrl

We know. $l = \sqrt{h^2 + r^2}$

Given that $\frac{2\pi rh + \pi r^2}{\pi r(h_1^2 + r^2)^{1/2}} = \frac{3}{1}$

$$\frac{2h + r}{\sqrt{h_1^2 + r^2}} = \frac{3}{1} \quad \{\because h_1 = 4$$

$$\{ r = 3m$$

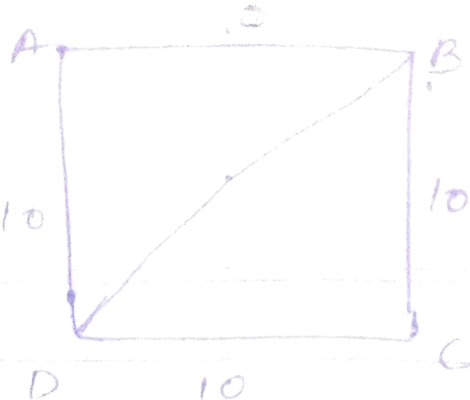
$$\frac{2h + r}{\sqrt{16 + r^2}} = \frac{3}{1}$$

$$\frac{2h+3}{\sqrt{16+9}} = \frac{3}{1} \Rightarrow 2h + 3 = 15$$

$$2h = 12$$

$$\boxed{h = 6m}$$ Ans

(2)



Side $= \sqrt{10^2+10^2} = \sqrt{200}$

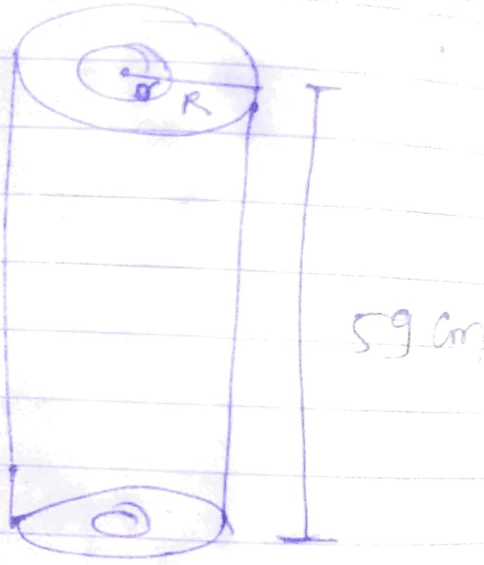
Area $= 200m^2$

Answer C: $200m^2$

---

(3) Given that:

$R = 9$, $r = 5$



Volume of the hollow cylinder:

$V = \pi h(R^2 - r^2)$

$V = \frac{22}{7} \times 59[81-25]$

$= \frac{22}{7} \times 59[56^8]$ $= 22 \times 59 \times 8$

$= 10384\ cm^3$

$V = 10384\ cm^3$

(4) Let cylinder A has radius r_1 and height h_1
cylinder B has radius r_2 & h_2 height

for
cylinder A = Area(A) = $2\pi r_1(r_1 + h_1)$

for cylinder B ⇒ Area(B) = $2\pi r_2(r_2 + h_2)$

Given that: $\frac{r_1}{r_2} = \frac{2}{1}$, ⇒ $r_1 = 2r_2$

also $\frac{h_1}{h_2} = \frac{2}{1}$ ⇒ $h_1 = 2h_2$

⇒ $\frac{\text{Area}(A)}{\text{Area}(B)} = \frac{2\pi(2r_2)(2r_2 + 2h_2)}{2\pi r_2(r_2 + h_2)}$

$= \frac{4(r_2(r_2 + h_2))}{r_2(r_2 + h_2)} = \frac{4}{1}$

Ans $\boxed{\frac{\text{Area}(A)}{\text{Area}(B)} = \frac{4}{1}}$ 4:1 Ans (D)

(5) Given that: Area = 88704 m^2

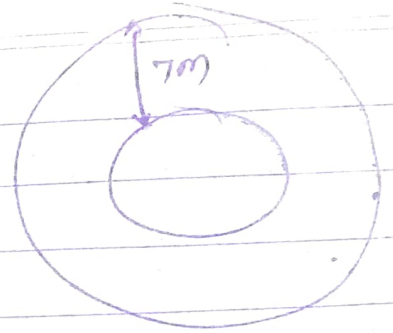
$88704\ m^2 = \pi r^2$

$\frac{22}{7} r^2 = 88704$

$r^2 = \frac{88704 \times 7}{22}$

$r^2 = 28224$

$r = 168\ m$



$R = 168 + 7 = 175\ m$

area of outer circle $\Rightarrow \frac{22}{7}(175)^2$

$= \frac{22}{7}(30625) = 96250\ m^2$

laying road $\Rightarrow$ 96250 − 88704

$= 7546\ m^2$

cost $\Rightarrow$ $7546 \times 2 = 15092$ Rs. D