Exercise 19A

Question 5:
Radius o f cylinder = 2.5 m
Height of cylinder = 21 m
Slant height of cone = 8 m
Radius of cone = 2.5 m
Total surface area of the rocket = (curved surface area of cone + curved surface area of cylinder + area of base)

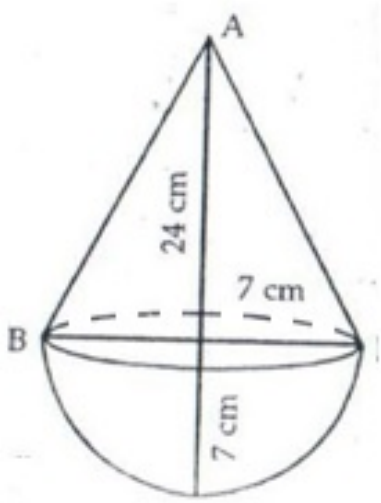
$$= \left(\pi rl + 2\pi rh + \pi r^2\right)$$

where $l = 8\,m,\ h = 21\,m,\ r = 2.5\,m$

$$= \left(\frac{22}{7} \times 2.5 \times 8 + 2 \times \frac{22}{7} \times 2.5 \times 21 + \frac{22}{7} \times 2.5 \times 2.5\right) m^2$$

$$= (62.85 + 330 + 19.64)\,m^2 = 412.5\,m^2$$

Question 6:



Height of cone = h = 24 cm
Its radius = 7 cm

$$\therefore \text{Slant height} = \sqrt{(24)^2 + 7^2}$$

$$= \sqrt{576 + 49}$$

$$= \sqrt{625} = 25 \text{ cm}$$

Total surface area of toy

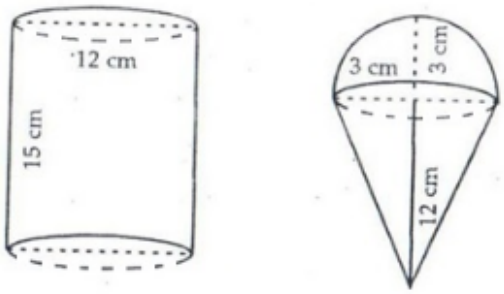
$$= \left(\pi rl + 2\pi r^2\right)$$

$$= \pi r\left(l + 2r\right)$$

$$= \frac{22}{7} \times 7 \times (25 + 14)$$

$$= 22 \times 39 = 858 \text{ cm}^2$$

Question 7:



Height of cylindrical container $h_1 = 15cm$

Diameter of cylindrical container = 12 cm

Volume of container = $\pi r_1^2 h_1 = \pi \times 6 \times 6 \times 15 = 540\pi \text{ cm}^2$

Height of cone $r_2 = 12$ cm

Diameter = 6 cm

Radius of $r_2 = 3cm$

$$\text{Volume of cone} = \frac{1}{3}\pi r_2^2 h_2 = \frac{1}{3}\pi \times 3 \times 3 \times 12$$

$$= 36\ \pi\ m^3$$

Radius of hemisphere = 3 cm

$$\text{Volume of hemisphere} = \frac{2}{3}\pi r_2^3 = \frac{2}{3}\pi \times 3 \times 3 \times 3 = 18\pi$$

Volume of cone + volume of hemisphere

$= 36\ \pi + 18\ \pi = 54\ \pi$

$\therefore$ Number of cones

$$= \frac{\text{Volume of container}}{\text{Volume of cone} + \text{Volume of hemisphere}}$$

$$= \frac{540\pi}{54\pi} = 10$$

Number of cones that can be filled = 10

********** END **********