FORM 2
CHAPTER 6

Summative Practice

Section A

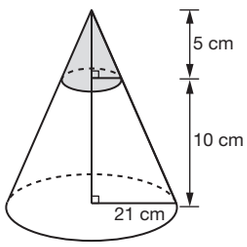
1 Answer: **D**

2 Answer: **C**

3 $\frac{5}{r} = \frac{15}{21}$

$15r = 105$

$r = 7$ cm



Volume of frustum

$= \left(\frac{1}{3} \times \frac{22}{7} \times 21^2 \times 15\right) - \left(\frac{1}{3} \times \frac{22}{7} \times 7^2 \times 5\right)$

$= 6\,673\frac{1}{3}$ cm^3

Answer: **B**

4 Surface area of cube – Surface area of hemisphere base + Surface area of curved face of hemisphere

$= (6 \times 14 \times 14) - \left(\frac{22}{7} \times 7^2\right) + \left(2 \times \frac{22}{7} \times 7^2\right)$

$= 1\,330$ cm^2

Answer: **A**

5 $MN = \sqrt{3^2 + 4^2}$

$= 5$ cm

Total surface area $= (6 \times 8) + (2 \times 6) + (4 \times 6) + (6 \times 5) + (5 \times 6) + 2\left[(8 \times 2) + \left(\frac{1}{2} \times 4 \times 3\right)\right]$

$= 48 + 12 + 24 + 30 + 30 + 2(22)$

$= 188$ cm^2

Answer: **D**

6 Volume of solid = Volume of cone + Volume of hemisphere

$= \left(\frac{1}{3} \times \pi \times 3^2 \times 7\right) + \left(\frac{2}{3} \times \pi \times 3^2\right)$

$= 39\pi$

Answer: **C**

7 Volume of remaining solid = Volume of cylinder – Volume of cone

$= \left(\frac{22}{7} \times 5^2 \times 14\right) - \left(\frac{1}{3} \times \frac{22}{7} \times 5^2 \times 7\right)$

$= 916\frac{2}{3}$ cm^3

Answer: **B**

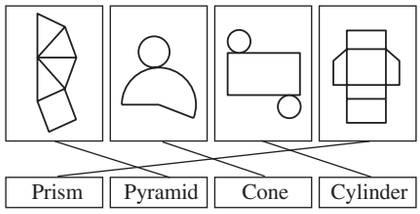
8 $\frac{60}{40} \times 20 \times 15 \times 6 = 2\,700$ cm^3

Answer : **C**

Section B

1 (a) Cone
(b) Sphere
(c) Pyramid
(d) Cylinder

2



3 (a) (i) ✓
(ii) ✗
(b) $\pi r(r + q)$

Section C

1 (a) Volume of container

$= \left(\frac{22}{7} \times 7^2 \times 30\right) - \left(\frac{1}{3} \times \frac{22}{7} \times 7^2 \times 10\right)$

$= 4\,620 - 513\frac{1}{3}$

$= 4\,106\frac{2}{3}$ cm^3

Minimum number of cups used

$= 4\,106\frac{2}{3} \div 50$

$= 82.13$

$= 83$ times

(b) Volume of empty space

$= \left(\frac{22}{7} \times 3^2 \times 24\right) - 4\left(\frac{4}{3} \times \frac{22}{7} \times 3^3\right)$

$= 226\frac{2}{7}$ cm^3

Percentage volume of empty space

$= \frac{226\frac{2}{7}}{678\frac{6}{7}} \times 100\%$

$= 33\frac{1}{3}\%$

2 (a) $\pi r^2 h = 128\pi$

$\pi r^2(16r) = 128\pi$

$r^3 = 8$

$r = 2$ cm

$FG = 16 \times 2$

$= 32$ cm

(b) $\left(\frac{1}{2} \times 4 \times \frac{22}{7} \times 7^2\right) + \left(\frac{22}{7} \times 7 \times s\right) = 858$

$308 + 22s = 858$

$22s = 550$

$s = 25$ cm

Height of cone $= \sqrt{25^2 - 7^2}$

$= 24$ cm

Height of solid $= 24 + 7$

$= 31$ cm